WATER RESOURCES BOARD

Tuesday, October 22, 2019
Operations & Maintenance Facility
1725 South Church Street
3:30 PM

A G E N D A

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MEMORANDUM

DATE: September 23, 2019

TO: Water Resources Board

FROM: Alan Cranford

SUBJECT: Commercial Structures and Facilities Painting Contract Change Order No. 1
Stones River Water Treatment Plant

Background

In December 2018, Staff brought the bids for repainting of the Stones River Water Treatment Plant and Auxiliary Intake Building over the next four years. The approved bidder was Commercial Painting, Inc. They started their painting in FY19 and are preparing to conduct the painting for FY20. The FY20 Commercial Structures and Facilities Painting was budgeted at $350,000. There are some issues with the flooring coatings and preparation in the Membrane Room and Post Treatment Room that had to be corrected. To correct these issues will increase the cost of the coating and preparation of the floors by $27,123.

Staff recommends accepting Change Order No. 1 from Commercial Painting, Inc. Commercial Painting, Inc. painted the facility when under construction and has done additional painting on site since the 2010 expansion.

Fiscal Impact

The current cost of the FY20 project is $342,790. $350,000 is in the FY20 capital budget for painting. The $27,123 increase in the coating and preparation, if approved, would bring the FY20 project to $369,913. Funding for the additional $19,913 is requested to come from reserves.

Recommendation

Staff recommends that the Board recommend to the City Council accepting Change Order No. 1 from Commercial Painting, Inc.

Attachments

SRWTP - Commercial Painting Inc Change Order 1

Commercial Painting, Inc.

350 Herron Drive, Nashville, TN. 37210
Tel.: 615.242.8212 / www.cpinash.com

Murfreesboro Commercial Structures and Facilities Painting
Stones River WTP

Date: September 23, 2019
Re: Owner Request for Floor Coating Upgrade

The Owner has requested a change in the floor coating system for Area 9: Membrane Room and Area 10: Post Treatment Room, to provide the desired level floor and finish as well as addressing cracks in the floor.

- Current Specification
  - Surface prep: SSPC-SP13 abrasive blast; ICRI-CSP 3>
  - Primer/Intermediate: Tnemec 237 @ 8.0-12.0 mils dft, 2 coats
  - Finish: Tnemec 291 @ 2.0-3.0 mils dft

In order to achieve a higher level of appearance, including a more level and homogenous finish, the following system was provided by Tnemec. The system allows for cracks and control joints to be filled; a self-leveling intermediate coat applied with additional surface prep and termination details at trench gratings; higher total mil thickness of coating system, to provide the desired showroom quality appearance.

Concrete Water Treatment Plant Floors

Surface Preparation: Allow new poured-in-place concrete to cure a minimum of 28 days at 75°F (24°C). Verify concrete dryness in accordance with ASTM F 1869 “Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride” (moisture vapor transmission should not exceed three pounds per 1,000 square feet in a 24 hour period), F 2170 “Standard Test Method for Determining Relative Humidity in Concrete using in situ Probes” (relative humidity should not exceed 80%), or D 4263 “Standard Test Method for Indicating Moisture in Concrete by the Plastic
Sheet Method” (no moisture present).

Prepare concrete surfaces in accordance with NACE No. 6/SSPC-SP13 Joint Surface Preparation Standards and ICRI Technical Guidelines. Mechanically abrade concrete surfaces to remove laitance, curing compounds, hardeners, sealers and other contaminants and to provide an ICRI-CSP 2-3 surface profile. Fill cracks, voids and other surface irregularities with Tnemec Series 215 Surfacing Epoxy or Series 233 blended with fumed silica

Coating System:

Primer: Tnemec Series 233 Epoxoprime LV applied at 6.0 to 12.0 dry mils.
Intermediate: Tnemec Series 206 Sub flex EP applied at 30.0 to 80.0 dry mils.
Finish: Tnemec Series 291 CRU applied at 2.0 to 3.0 dry mils.

I recommend saw cutting the terminations around the imbeds at the trench drains as described in the attached detail SF4. Please see details SFS 21 or SFS 22 regarding the circular drains.

The additional cost for the above change in flooring systems is $27,123.00.

Please contact me with any questions.

Ken W. Darby
Commercial Painting, Inc.
615.739.5058

CHANGE ORDER NO. 1
TO THE
CONTRACT
BETWEEN THE CITY OF MURFREESBORO
AND
COMMERCIAL PAINTING INC.

This Change Order No. 1 to the Contract, entered into December 20, 2018 ("Contract"), by and between the City of Murfreesboro ("City"), a municipal corporation of the State of Tennessee and Commercial Painting Inc. ("Contractor"), a Corporation of the State of Tennessee.

RECITALS

WHEREAS, on December 20, 2018 the City entered into a contract with Commercial Painting Inc., for Commercial Structure and facilities Painting; and,

WHEREAS, the First Amendment to the contract was effective July 1, 2019 and,

WHEREAS, the City and Contractor wish to issue Change Order No 1 to address issues in the floor that require a different surface preparation and coating system

NOW THEREFORE, the City and Contractor mutually agree to change the current Contract, from July 1, 2019 until June 30, 2020 in the amount of $342,790.00 to $369,913.00 which includes areas identified as "Area One", "Area Two", "Area Nine", "Area Ten", and "Area Fifteen" in the original contract.

CITY OF MURFREESBORO

By:_____
Shane McFarland, Mayor

COMMERCIAL PAINTING INC.:

By:_____
Ken Darby, Vice President

Approved as to form:

Adam F. Tucker, City Attorney

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MEMORANDUM

DATE: October 16, 2019

TO: Water Resources Board

FROM: John Strickland

SUBJECT: Task Oder 19-08 – Installation of Six Variable Frequency Drives

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SUMMARY

Maintenance staff with advice from the manufacturer have determined that the six original Variable Frequency Drives at the WRRF's old oxidation ditches are at the ends of their lifecycles. To ensure adequate treatment capacity, they need to be replaced.

STAFF RECOMMENDATION

The Water Resources Board recommends to City Council approving Task Order 19-08 for the installation of six Variable Frequency Drives in the amount of $58,153 from John Bouchard & Sons Co.

BACKGROUND INFORMATION

The Oxidation Ditches at the Water Resource Recovery Facility are a key unit of the treatment process. The system relies on Variable Frequency Drives (VFD's) controlling the nine 200 HP Aerators which mechanically introduce oxygen into the mixed liquid. The six original VFD's were commissioned in 2009.

This request is for the installation of the equipment only. The purchase of the Variable Frequency Drives was previously approved by the Board and the Council with the understanding that the installation would later be submitted for approval.

FISCAL IMPACT

The installation of the Variable Frequency Drives was budgeted in the Department's rate funded capital account in the amount of $480,000. Note that the budgeted amount covers the purchase ($366,705.90 – previously approved) and installation ($58,153) which together total $424,858.90.

ATTACHMENTS

Task Order 19-08

TASK ORDER NO. 19-08

October 16, 2019

BETWEEN

JOHN BOUCHARD & SONS COMPANY AND CITY OF MURFREESBORO
acting by and through the Murfreesboro Water Resources Department

UNDER

Water/Wastewater System Mechanical/Electrical Services Contract

FOR

WRRF Installation of Six Variable Frequency Drives

Task Order No. 19-08

WRRF Installation of Six Variable Frequency Drives

BACKGROUND

The Oxidation Ditches at the Water Resource Recovery Facility are a key unit of the treatment process. The system relies on Variable Frequency Drives (VFD's) controlling the nine 200 HP Aerators which mechanically introduce oxygen into the mixed liquid. The six original VFD's were commissioned in 2009.

This request is for the installation of the equipment only. The purchase of the Variable Frequency Drives was previously approved by the Board and the Council with the understanding that the installation would later be submitted for approval.

SCOPE OF WORK

JBS proposes to install the new drives which will be built for conduit top entry and wire termination points will be the same as the existing.

Electrical Scope of Work

- Temporary controls so only (1) drive will be down at a time.
- Pull back existing 480 volt wiring to rework conduits.
- Remove existing drives (1) at a time.
- Install new drives, shifting the locations towards the 480 volt service to allow room to remove and install other drives in the lineup.
- Rework conduits as needed into the new drives.
- Pull existing wiring back into the drives and terminate.
- Assist in startup as needed.

Murfreesboro Service Contract Rate Sheet - 2018

Murfreesboro WWTP Budget Estimate to Replace (6) Drives 09/13/2019

Description	Qty (hrs)	Rate	Extended
Project Mgr (RT)	16	$75.00	$1,200.00
Project Mgr (OT)		$110.00	$0.00
Superintendent (RT)	8	$67.00	$536.00
Superintendent (OT)		$100.50	$0.00
Pipefitter/Welder (RT)		$52.00	$0.00
Pipefitter/Welder (OT)		$78.00	$0.00
Sprinkler Fitter (RT)		$44.00	$0.00
Sprinkler Fitter (OT)		$66.00	$0.00
Electrician (RT)	493	$52.00	$25,636.00
Electrician (OT)		$78.00	$0.00
Apprentice/Helper (RT)	493	$37.00	$18,241.00
Apprentice/Helper (OT)		$55.50	$0.00
Expediter/Delivery (RT)		$29.00	$0.00
Expediter/Delivery (OT)		$43.50	$0.00
Machine Shop Millwright (RT)		$60.00	$0.00
Machine Shop Millwright (OT)		$90.00	$0.00
HVAC/Plb Service Tech (RT)		$66.00	$0.00
HVAC/Plb Service Tech (OT)		$99.00	$0.00
Air Compressor Tech (RT)		$66.00	$0.00
Air Compressor Tech (OT)		$99.00	$0.00
Laborer - Skilled (RT)		$32.00	$0.00
Laborer - Skilled (OT)		$48.00	$0.00
Laborer - Unskilled (RT)		$23.00	$0.00
Laborer - Unskilled (OT)		$34.50	$0.00

493

Equipment	Qty (hrs)	Rate/Hr	Extended
Welder		$15.00	$0.00
Power Threader	80	$10.00	$800.00
Mini/Midi Hammer		$10.00	$0.00
Variable Reach Forklift		$27.00	$0.00
Pickup Truck	493	$15.00	$7,395.00
Scissor Lift		$19.00	$0.00
Skid Steer		$25.00	$0.00
Boom Man Lift		$29.00	$0.00
Cat 420D Backhoe		$34.00	$0.00
Street Plate		$7.00	$0.00
185 CFM Compressor		$15.00	$0.00
ECM 350*		N/A	
Air Track Drill*		N/A	
Pipe Laser		$21.00	$0.00
Total Station EDM		N/A	
15 ton Boom Truck*		$115.00	$0.00
30-50 Ton RT Crane*		N/A	
80 Ton Crawler Crane*		N/A	
3" Submersible Pump		$12.00	$0.00
6" Hydraulic Pump		$17.00	$0.00

Materials & Subcontractors		
Materials		$3,950.00

Markup on Material & Subcontractors	10.00%	$395.00

TOTAL ESTIMATE	$58,153.00

Contractor:

John Bouchard and Sons Company

By: David Proctor

Name: David Proctor

Title: Project Manager, Esquire

Date: 10/1/19

City:

City of Murfreesboro Water Resources Dept.

By: _____

Name: _____

Title: _____

Date: _____

CONTRACTOR NOTICE CONTACT INFORMATION

John Bouchard and Sons Company

Mailing address 1024 Harrison St.
Nashville, TN 37203

Phone number 615-256-0112

Fax number 615-256-2427

Company Contact David Proctor

E-mail David.Proctor@jbouchard.com

CITY NOTICE CONTACT INFORMATION

Murfreesboro Water Resources Dept.

Mailing address 300 NW Broad St.
Murfreesboro, TN 37130

Phone number 615-890-0862

Fax number 615-896-4259

Company Contact Darren Gore

E-mail dgore@murfreesborotn.gov

MINUTES
MURFREESBORO WATER RESOURCES BOARD
September 24, 2019

The Murfreesboro Water Resources Board met on Tuesday, September 24, 2019 in the conference room at the Operations and Maintenance Building, 1725 S. Church Street. Present at the meeting were Board members: Mr. John Sant Amour, Dr. Al Carter, Mr. Ron Crabtree, Ms. Kathy Nobles, Ms. Sandra Trail, and Ms. Madelyn Scales-Harris. Also present were Darren Gore, Valerie Smith, Doug Swann, Adam Tucker, Anita Heck, Steve Tate, Ryan Potts, Jimmy Stacey, Matt Powers, Alan Cranford, Joe Russell, Linda Sullivan, Jay Bradley, Brent Fowler, Mark Lee, Ronnie Martin, Andy McCrary, and Travis Wilson along with other members of the public.

The Consent Agenda was presented for the following considerations:

A. Consider JB&S Task Order 19-07 for Water/Wastewater Mechanical/Electrical Services Contract, Replacement Mag Meter & Vault Lid at Lake RW Intake –

Staff submitted Task Order No. 19-07 to remove existing raw water meter lid at the Auxiliary Raw Water Pump Station, replace the existing flow meter installed in 1999 with an Endress+Hauser Mag meter like the ones at the SRWTP, install a new traffic rated precast vault lid and relocate the existing pedestal. The project will take approximately 8-10 weeks for completion.

The cost for the project is estimated at $61,720.93. There is $70,000 budgeted in the FY20 Capital Budget. The project is $8,270.07 under budget.

Staff recommended the Board recommend to the City Council approving JB&S Task Order 19-07 in accordance with the estimate.

B. Consider JB&S Task Order 19-09 for Water/Wastewater Mechanical/Electrical Services Contract, Installing Brackets for Aluminum Grating –

Staff submitted Task Order No. 19-09 to remove and reinstall the angle brackets to support new grating above the raw water trough feeding the softening basins. During the process of getting quotes for new grating it was determined that the spacing of the existing angle brackets were not evenly spaced and would require special cutting of new grating. In addition, the existing grating is longer and more difficult for operators to handle. The new layout will allow a more manageable grating length and reduce the overall cost of the grating as it will be at a standard length.

The FY19 Capital Budget had $10,000 that was transferred to the FY20 Capital Budget amount of $30,000 for a total of $40,000. The cost to remove and reinstall angle brackets is $10,250. This leaves $29,750 for funding to replace the grating.

Staff recommended the Board recommend to the City Council approving JB&S Task Order 19-09 in accordance with the estimate.

C. Consider JB&S Task Order 19-10 for Water/Wastewater Mechanical/Electrical Services Contract, GAC Contractor Area Drains Pipe Replacement –

Staff submitted Task Order No. 19-10 to remove existing cast iron drain piping and replace with new cast iron piping for the GAC contractor room. This piping was installed in 1967 and 1978. The two areas are clogged and can no longer be cleaned as well as leaking in several places.

This work was not anticipated and is not in the budget. The cost to demolish and replace is $15,264.34. Funding is requested to come from working capital reserves.

Staff recommended the Board recommend to the City Council approving JB&S Task Order 19-10 in accordance with the estimate.

D. Consider abandonment of sewer easements in Chestnut Hill Subdivision –

The Developer is requesting the abandonment of two, 15-foot sanitary sewer easements located between Lots 60 & 61 of Chestnut Hill Subdivision Section 5, Phase 2. This easement was recorded by plat and was intended for a proposed gravity sewer main to serve properties to the south. During the design and review stage of the next phase of the subdivision, the Developer requested to install 5-6 lots with a step tank and gray water pump and pump uphill to Berryhill Drive instead of installing approximately 384 feet of ductile iron gravity sewer between Lots 60 & 61 to serve the proposed 5 lots. Staff has agreed to allow the installation of the step tank, gray water pumps and small forcemain instead of the gravity sewer, therefore, these easements are no longer necessary.

Staff recommended that the Board recommend to the Planning Commission and City Council approval of abandoning these existing sewer easements.

E. Consider purchase of Dell VXRAIL system –

Murfreesboro Water Resources currently has a server that is 8 years old and obsolete with no ability to purchase parts for repair. This server is currently housing multiple virtual servers that are vital to the Customer Service and AMI departments. This server currently has a failed power supply and network interface card, loss of another power supply or network interface card will result in a completely failed unit where data and applications will not be accessible to the extent of, taps cannot be sold, Customer Service will be unable to provide information to customers, data will not be collected from wireless water meters, etc. The proposed system is built utilizing two servers for complete redundancy should one server fail all data and applications will be preserved and the departments unaffected in operations. The price includes complete setup and 3-year warranty of both servers.

Staff recommended the Board recommend to City Council approving the purchase of the VXRAIL from Waypoint in the amount of $195,749.82. Funding is included in the current capital budget.

F. Consider Change Order #4 for Sanitary Sewer Rehabilitation 2016/2017 project –

Since approving award of the contract for this project to SBW Constructors, LLC in the amount of $3,492,251 in June 2017, the Board has approved three Change Orders to add to the original scope of work. Change Order #1 was approved July 2017 in the amount of $195,360, Change Order #2 was approved February 2018 in the amount of ($57,699.52) and Change Order #3 was approved June 2018 in the amount of $766,057.29 for a current contract amount of $4,395,968.77.

Staff is ready to close out this 2016/2017 Sewer Rehabilitation project, so we are bringing this final balancing change order for your review and final approval. Final Change Order #4 is an increase in the contract amount of $33,921.70 for a total contract value of $4,429,890.47. There were several factors for this increase, however, the Department did not fund the total amount of this increase. S&ME has explained that a portion of the additional expense was reimbursed by local Developers and then a portion of the increase was due to the repair of 5 manhole liners that were damaged by a City contractor. The liners had to be repaired in order for the warranty to remain valid. One other miscellaneous item was for heavy cleaning on a section of sewer main that the Department needed but did not have the equipment to handle.

This change order will also reconcile the extended time it took to complete this project and add 177 days to the contract.

Staff recommended the Board recommend to City Council approval of this Final Change Order #4 with SBW Constructors.

A motion was made by Dr. Carter to accept the Consent Agenda as presented and it was seconded by Madelyn Scales-Harris. The Board voted unanimously to approve.

The August 27, 2019 Board Minutes were unanimously accepted as written.

The Board considered a trough construction joint repair project at SRWTP.

In 2017, staff brought a project to the Board for repairing the 200-foot long trough that transports water to the softening basins. This trough had numerous leaks that were flooding the pipe gallery with water. The Board and Council approved using Tyfo® Fibrwrap® system using Tyfo Weld to cover 200-feet of the trough. This work was completed over a year ago and there are two leaks that were not able to be resolved using this method. These two leaks are coming from two major construction joints. Staff has spoken with Fibrwrap representatives and after months of review, they are not able to provide a solution that is cost effective and acceptable to staff and SSR.

Staff and SSR began looking at other options for repair and are recommending Industrial Repair, Inc. They specialize in construction joint repair and replacement as well as coatings. The product and application are similar to what TVA has used and most of the repairs have exceeded 20 years of service. This specifically addresses the replacement of the existing construction/expansion joint with a material designed to expand and contract while ensuring water does not pass through the joint. The cost of the material, labor and installation is $7,250 and has a one-year warranty.

For Industrial Repair, Inc. to perform the work, the trough must be clean and dry. The trough is a critical point in the treatment process as the plant cannot operate if the trough is not in service, unless the trough is bypassed with piping. The bypass piping diverts the water out of the trough through pipe directly to a softening basin inlet. The only company that does this in our area is Xylem Dewatering Solutions, Inc. located in Antioch. The plan is to have the trough out of service for two weeks. There are three other projects that need to be completed when the trough is clean and dry. The plan is to coordinate all three projects so that they will be completed during the two-week operation of the bypass piping operation thereby reducing the overall costs of the three projects.

The estimate for the trough construction joint project is $7,250 from Industrial Repair, Inc. The estimate for the dewatering portion of the project from Xylem Dewatering Solutions, Inc. is $47,269.47. The total cost for this project is $54,519.14. Funding is requested to come from reserves.

Staff recommended the Board recommend to the City Council approving the work associated with trough repairs using Industrial Repair and Xylem Dewatering Solutions.

Kathy Nobles made a motion to approve. Dr. Carter seconded. The motion unanimously passed.

The Board considered Walter Hill Dam Rehabilitation Project Change Order 2.

Haren Construction Company, Inc. (HCCI) has made significant progress on the repairs of the Walter Hill Dam since remobilizing onsite following the removal of the stop work order. Since remobilizing, HCCI reinstalled their siphon piping to lower the water level behind the dam to make repairs on the dam cap. Since the water level has dropped two feet below the top of the dam, water is no longer spilling over the face of the dam. Without the constant presence of water flowing over the face of the dam, the dam face is fully visible. Smith Seckman Reid, Inc. (SSR) and HCCI have since observed algae growth on the face of the dam. Upon further investigation, it was found that the growth was coming from water leaking through what appears to be a large construction expansion joint that runs the entire length of the dam's face. It was determined the best way to address the issue was to pressure inject the crack/joint while the Contractor is already onsite in hopes of remediating the leak. The Tennessee Department of Environment and Conservation (TDEC) Division of Water Resources Safe Dams has stated that they want water going over the dam or through the weep holes only.

HCCI believes if the weather cooperates, the minimum cost of work would increase the contract price by $17,815.50 in addition to the full remaining contingency balance of $15,000. If the weather does not cooperate, HCCI estimates the price could increase in the contract up to a maximum amount Not to Exceed $64,454.99 plus the full contingency amount. In the worst-case scenario, HCCI increased the total linear footage of the pressure injection in case the pressure grouting causes the water to seep through other locations in the face of the dam that are not currently leaking.

Change Order No. 2 was created to modify the contract time from 347-day substantial completion to a 407-day completion. The final completion will subsequently be adjusted from 377 days to 437 days.

The contract price prior to this change order was $567,503.55. Change Order No. 2 will bring the total approved amount to $631,958.54. Funding is recommended to come from reserves.

Staff recommended the Board recommend to the City Council approving Change Order No. 2 in accordance with the Not to Exceed estimate.

Ron Crabtree made a motion to approve. Madelyn Scales-Harris seconded. The motion unanimously passed.

The Board considered sole source purchase of JMS Mega-VAC hoseless sludge removal system.

The treated water trough that transports water from the flash mix to the softening basins is a critical component of the treatment process. Currently the plant must shut down multiple times during the year for the trough to be cleaned and during this period, no water can be produced. The time the plant is shut down is approximately 4 to 6 hours for cleaning the trough. This can greatly impact the water level in the distribution system. Staff has been looking for several years to find a product that would practically eliminate the need to take the trough out of service for cleaning. Through research and product evaluation, staff has selected the JMS Mega-VAC (Hoseless Sludge Removal System).

The Mega-VAC does not have an attached hose. Hose systems are an additional maintenance cost and would not be effective in the small trough. The Mega-VAC uses a Telescoping Seal Assembly that is designed to optimize sludge removal, improving system efficiency, and lowering maintenance. This JMS feature allows the sludge to be carried through the telescoping pipe to the discharge outlet.

The JMS Mega-VAC system is more compact than other systems giving maintenance personnel more room to work in a tight space. It is also the only system with a dual drive assembly and the only option for a turnkey installation. Also, the same personnel that install the equipment are available for adjustments or troubleshooting.

This project is one of three projects that will be completed in coordination with the Trough Construction Joint project.

The cost for purchasing the JMS Mega-VAC (Hoseless Sludge Removal System) is $164,400. The System is in the FY20 Capital Budget in the amount of $165,000.

Staff recommended that the Board recommend to the City Council purchasing the JMS Mega-VAC from Bar Environmental in accordance with their quote.

Sandra Trail made a motion to approve. Kathy Nobles seconded. The motion unanimously passed.

The Board considered sole source purchase of variable frequency drives at WRRF.

Maintenance staff, with advice from the manufacturer, have determined that the six original Variable Frequency Drives at the WRRF's old oxidation ditches are at the ends of their lifecycles. To ensure adequate treatment capacity, they need to be replaced.

The Oxidation Ditches at the Water Resource Recovery Facility are a key unit of the treatment process. The system relies on Variable Frequency Drives (VFD's) controlling the nine 200 HP Aerators

which mechanically introduce oxygen into the mixed liquid. The six original VFD's were commissioned in 2009.

This request is for the purchase of the equipment only. The cost of installing the Variable Frequency Drives, through the Department's standing contract with John Bouchard & Sons, is estimated at $65,000.

Staff recommended the Board recommend to City Council approving the purchase of six VFD's in the amount of $366,705.90 from Irby Electrical Distributor a Sonepar Company.

This purchase was budgeted in the Department's rate funded capital account in the amount of $480,000.

Sandra Trail made a motion to approve. Madelyn Scales-Harris seconded. The motion unanimously passed.

The Board considered Department participation for installing an upsized sewer main extension through Westlawn Commercial Subdivision.

Parks-Harney Holdings, G.P., owns property on the north side of Shores Road along Veterans Parkway and wishes to extend sewer through this commercial development. In following the Sub-Area Master Plan (SAMP) for sewer, the development qualifies for participation and staff recommends participating with the developer to extend an existing 10" sewer main at a deeper depth than required for the proposed development. The goal is to extend sewer to serve an area south of Shores Road. SEC, Inc., has submitted a request for sewer participation and submitted a sewer cost estimate to determine the participation amount.

This recommendation is consistent with the Department's participation policy, within our approved Policies, Procedures & General Design Requirements adopted in 2009 by the Board & Council:

1. Prior to dedication and acceptance of the improvements by the City, the Developer requesting reimbursement must present to the City Council a detailed statement of the actual eligible costs and the City Council in its discretion may amend the agreement, and the reimbursement amount, to reflect the actual project costs.
2. Should a project be eligible for participation by the City due to upsizing of a water or sewer line, the Department reserves the right to publicly bid the project or the portion of the project eligible for participation.
3. Participation in the cost to upsize water and/or sewer lines shall be in accordance with established policies in effect. The Department or Developer can prepare a schedule of upsize participation, based on recent bid results or agreed upon unit pricing, which the Department and the Developer may accept in lieu of publicly bidding, subject to approval of the Water and Sewer Board and City Council.
4. The Department will only participate on that portion of sewer deeper than twelve (12) feet deep, if the sewer is upsized and if the material changes.
5. Sewer must extend to the limits of construction at strategic locations for future extension.

Staff recommended the Board recommend to City Council approving the sewer participation in the amount of $60,659 for a larger and deeper sewer interceptor. Funding is recommended to come from the Department's working capital reserves.

Kathy Nobles made a motion to approve. Dr. Carter seconded. The motion unanimously passed.

The Board considered a proposal from CIA for engineering design services for Cherry Lane Extension, Phase 2. Sandra Trail advised the Board she had a conflict and abstained from discussion and voting.

In September 2016, the Board approved of a proposal from Wiser Company for the study and development of a sewer master plan for the Cherry Lane Extension. The sewer master plan was completed and will be used as a valuable tool in the design of the sewer improvements.

The City and Wiser Company are still moving forward with the design and land acquisition for the project and has now separated the project into phases. It is typical for the Department to contract with the roadway design engineer (Wiser) for any water and sewer improvements necessary for the roadway construction; however, Wiser does not currently have an engineer on staff qualified to fully design the appurtenances shown in the sewer master plan i.e. gravity sewer, sewer pump stations and sewer forcemains.

Staff requested a proposal from Civil Infrastructure Associates (CIA) to verify the sewer master plan and design the improvements necessary to serve the sewer basin encompassed with Phase 2 of the roadway. There is some design work necessary of the offsite sewer improvements (gravity sewer, sewer pump station and forcemain) that will be installed at a future date either by the Department or as development occurs in the area. This offsite design work is necessary in order to correctly design the improvements that will be built with the roadway (gravity sewer and repurified water main).

Staff recommended the Board recommend to City Council approval of the engineering proposal for design services with CIA in the amount not to exceed $108,000 with funding from the Department's working capital reserves account.

Kathy Nobles made a motion to approve. Dr. Carter seconded. The motion unanimously passed.

The Board considered outside city sewer customer request from Rutherford County Schools.

Rutherford County Schools has requested sanitary sewer service to two pre-existing schools and one future campus outside of Murfreesboro's City Limits.

The two pre-existing schools are Daniel McKee on Halls Hill Pike and Buchanan Elementary School along Manchester Hwy. The future school campus that would contain an elementary, middle and high school is on Sledge Road south of the Buchanan Rd. interchange on Interstate 24. All of these sewer requests are within Consolidated Utility Districts water service area.

The City has established a precedent in allowing Rutherford County schools outside of our corporate limits to be served by sanitary sewer under the following conditions:

1) The County school system owns and operates their own private pumping station servicing that school or campus, and
2) The County maintain their own private force main from the privately-operated pump station to the terminus manhole owned by Murfreesboro that it discharges into, and
3) The pump station and force main serve the school facility exclusively with no other properties or facilities allowed to tie on to the private system.

Section 1.3.2 of Murfreesboro Water Resources Policy Procedures and General Design Requirement – Amendment No. 2, approved March 3, 2016, regarding Outside City Sewer Service states:

Should annexation not be recommended, service as an outside the city customer may be possible by written agreement under the following utility extension policy:

1) Only properties within the Buchanan and Elam Road Interchanges Sanitary Sewer Assessment District, as defined in City Code Section 33-206 will be considered for outside the City sewer service, and
2) Only properties may be considered outside the City sewer customers where providing sewer services is deemed a higher benefit to the public than annexation affords (e.g., parks, schools, etc.).

All three requests would fall under category 2); deemed a higher benefit than annexation affords.

Staff recommended the Board recommend to City Council approval of these schools as Outside City Sewer Customers per MWRD Policy Procedures and General Design Requirement.

These schools would be required to pay all current sewer connection fees upon connection to the sewer system which is now $24 dollars per student in addition to Sanitary Sewer Assessment District Fees. Both the Buchanan Elementary School and the Future School(s) along Sledge Road are within the Buchanan/Elam Sewer Assessment District and will be charged the equivalent of $1000 per single family unit.

Sandra Trail made a motion to approve. Kathy Nobles seconded. The motion unanimously passed.

Staff presented and discussed the Water Resources Dashboard Performance for August 2019.

There being no further business, the meeting was adjourned.

_____

John Sant Amour, Chairman

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MEMORANDUM

DATE: October 18, 2019

TO: Water Resources Board

FROM: Darren Gore

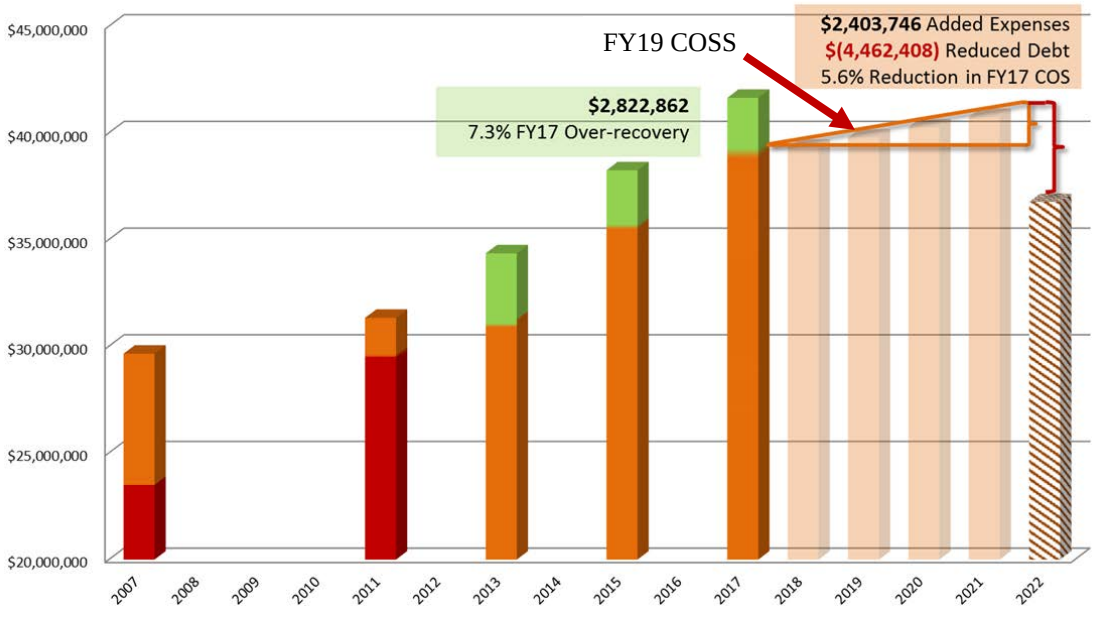
SUBJECT: FY2019 Cost of Service (COS) and Rate Study
Professional Services Proposal from Jackson Thornton

BACKGROUND

Staff is recommending the Board recommend approval of a Water Resources Cost of Service (COS) and Rate Study with Jackson Thornton for year ending June 30, 2019 in the amount of $41,300. The COSS determines the minimum user fees to cover the Department's fixed costs and the commodity rates to cover the production of potable water and treatment of sanitary sewer between the several customer classes the Department serves. Approval of the COS and rate study is consistent with the Department's prior Financial Management Policies adopted in December 2017. Section E. Rates, Fees, and Charges Policies, Item E.6. states: "*The Department shall consider using the services of a qualified independent consultant to conduct a comprehensive cost of service and rate study at approximately two (2) year intervals.*" The last COSS was conducted for the Department in FY2017.

The proposal includes determining Cost of Service (COS) and Rate Studies for MWRD's water, sewer and repurified (reclaimed) water system.

A new cost of service study will help position the Department appropriately to develop our five (5) year rate design and determine where we are in comparison to the previous 5-yr pro forma calculations developed in the FY17 study. The previous study gave a Pro Forma through FY22 and the proposed study will develop a Pro Forma through FY24.



RECOMMENDATION

MWRD staff recommends the Board recommend to City Council approving the attached proposal from Jackson Thornton to conduct a Cost of Service Study (COSS) and Rate Study for MWSD for FY2019, year ending June 30, 2019.

FISCAL IMPACT

The Jackson Thornton COSS for the water and sewer fund is a fixed fee of $41,300. This COSS has been budgeted and recommended to be funded from the outside professional services operating account.

ATTACHMENTS

- Jackson Thornton Proposal for COSS and Rate Study – dated October 16, 2019.

JACKSON THORNTON
Certified Public Accountants & Consultants

October 16, 2019

Mr. Darren Gore, P.E.
Assistant City Manager – Utility Enterprises
Murfreesboro Water Resources Department
Post Office Box 1477
Murfreesboro, Tennessee 37133

Re: Engagement Arrangements for professional services related to Revenue Requirements Analysis and Cost of Service/Rate Study for the Water/Wastewater/Repurified Systems

Dear Mr. Gore:

We appreciate the opportunity to submit to you and the Murfreesboro Water Resources Department ("MWRD") our proposal to assist you with the Revenue Requirements Analysis and Cost of Service/Rate study detailed herein. We believe that you will find Jackson Thornton's Utilities Consulting Group to be uniquely qualified to assist MWRD with this project because of the extensive knowledge and experience that we have in the utilities industry.

We have performed similar cost of service and rate design projects for many other distribution systems, and will be glad to provide a list of references upon request. We currently assist more than 40 water/wastewater systems with Cost of Service/Rate Study work.

PROJECT STAFFING

We anticipate that the staff involved in the COS/Rate Study project will primarily be Jim Marshall and Sarah Chandler. I will be the principal-in-charge and Sarah will serve as the manager on this project. In addition, we have a staff of professionals dedicated to utility accounting and consulting that we can call upon if needed.

James B. Marshall, III, the principal responsible for electric, natural gas, and water and sewer utility Cost of Service/Rate Study work has worked with utilities for more than thirteen years. During that time, he has provided financial forecasting, cost of service, and rate design consulting projects for utilities throughout the southeast. Jim has also worked with manufacturing and commercial companies across the country on tax issues and utility negotiations. He is certified by the Association of Energy Engineers as an Energy Procurement Professional. Jim currently serves on AWWA's Rates and Charges Committee as well as the Utility Finance Management Committee for the Kentucky/Tennessee section of AWWA.

Sarah V. Chandler has experience in the utilities industry in the areas of cost of service, rate design, and regulation. Sarah worked for 8 years at the Alabama Public Service Commission as an Advisory Staff Analyst where she reviewed and evaluated rates and other filings for utilities. She also has rate design and cost of service experience with a large interstate natural gas pipeline. She has completed training classes for financial planning, rates, fees, and charges sponsored by AWWA. Sarah serves on AWWA's Finance, Accounting, and Management Controls Committee.

PROJECT OBJECTIVE

The overall objective of this project is to provide independent analysis and objective information to allow MWRD to determine if its current water, wastewater, and repurified rates need to be changed and, if so, where the changes in rates are needed. For MWRD, we propose this engagement as a multi-phased project.

Phase I – Revenue Requirements Analysis "RRA" – This phase of the project includes working with the management team to review historical accounting and cost records for plant investment and expenditures. We will also review budgets (financial, capital requirements, cash flow, etc.) and loan covenant requirements in order to determine the projected revenue requirements of each utility service and for the system. After performing this RRA, we will know if the current rates will generate the needed revenue requirements for each service provided and for the system.

Phase II – PART 1 - Prepare Embedded Water/Wastewater/Repurified Cost of Service Study "COSS" – This phase of the project includes working with your management team to perform a detailed allocation of the distribution plant, operating expenses, debt service and capital improvement projects to each rate class. From this phase we can determine if rate equity exists between rate classes. The results of this COSS will provide the support for any changes in your rates, if any are needed.

PART 2 - Prepare Preliminary Rate Designs for Each Rate Class – The second part of this phase includes using the COSS results to determine what changes in current rates are needed to generate the revenues desired from each rate class. After preliminary rates have been determined for each rate class, analysis can be prepared reflecting existing rates versus proposed rates and total revenues generated by each different rate class.

PROJECT PROCEDURES STANDARDS

The procedures employed by JTUC follow generally accepted cost of service principles. Our model is flexible to compensate for individual accounting practices. As a guideline, our water and sewer model follows the allocation processes detailed in the M-1 Manual ("Principles of Water Rates, Fees and Charges prescribed by the American Water Works Association"). Revenue requirements will be calculated using the Cash Method, unless otherwise desired. JTUC has developed a comprehensive Cost of Service model that allows Management and MWRD to explore all study variations desired for each system.

The assistance to be supplied by the personnel of Murfreesboro Water Resources Department has been discussed and coordinated with Darren Gore, Director. We will provide an information request form prior to the first on-site meeting. The timely and accurate completion of this work is essential to our completion of the services described above.

During the course of our engagement, we may accumulate records containing data that should be reflected in MWRD's books and records. MWRD will determine that all such data, if necessary, will be so reflected. Accordingly, MWRD will not expect us to maintain copies of such records in our possession.

CONFIRMATION OF MANAGEMENT RESPONSIBILITY

You have informed us that the audit of MWRD may be performed in accordance with Government Auditing Standards (GAS) as issued by the Comptroller General of the United States. GAS requires that the auditor remain independent so that opinions, findings, conclusions, judgments, and recommendations will be

impartial and viewed as impartial by reasonable and informed third parties. Before we agree to provide a nonaudit service to MWRD, we must determine whether providing such a service would create a significant threat to our independence for GAS audit purposes, either by itself or in aggregate with other nonaudit services provided. A critical component of our determination is consideration of management's ability to effectively oversee the nonaudit service to be performed.

1. MWRD has designated Darren Gore, Assistant City Manager, a senior member of management, who possesses suitable skill, knowledge, and experience to oversee the revenue services.

2. MWRD will assume all management responsibilities for subject matter and scope of the revenue services.

3. MWRD will evaluate the adequacy and results of the services performed.

4. MWRD accepts responsibility for the results and ultimate use of the services.

FEES AND COSTS

Since we are proposing to complete both the water, wastewater, and repurified systems simultaneously, we will complete the three studies for a fee capped at $41,300.

Our price includes the development of cost curves by rate class and the comparison of current to proposed rates. This price does not include time required to meet with potential customers or opposition parties for rate approval.

Our fees are based on the understanding that MWRD will provide us with the data needed in a timely basis. All reasonable travel and out-of-pocket expenses will be billed at cost. The above fees do not include travel time, which will be billed at one-half our standard billing rates and capped to 8 hours per person, per round trip.

Any changes to the project (change of test year, financial projections, rate classes, billing data, etc.) after initial criteria are set will require a change order. We will provide an estimate as to the cost of any of these changes, and will receive approval by your management before proceeding.

Our fees for these services will be billed periodically as the work progresses. Such bills are payable on presentation and a late charge of 1½ % per month will be imposed for any portion of the billed amount not paid within 30 days of the bill date. We reserve the right to suspend our work and/or to terminate our engagement if any bill is not paid in full within 30 days of the bill date. In the event of suspension of our work or termination of our engagement, such work shall not be resumed and such engagement shall not be reinstated, as the case may be, until the account balance and all late charges are paid in full.

CLAIM RESOLUTION

It is agreed by MWRD and Jackson Thornton & Co., P.C. or any successors in interest that no claim arising out of services rendered pursuant to this agreement by or on behalf of MWRD shall be asserted more than two years after the date of the last report issued by Jackson Thornton & Co., P.C.

This letter constitutes the complete and exclusive statement of agreement between Jackson Thornton & Co., P.C. and MWRD, superseding all proposals, oral or written, and all other communications, with respect to the terms of the engagement between the parties.

Please sign and return the attached copy of this letter to indicate your acknowledgment of, and agreement with, the arrangements for our services.

JACKSON THORNTON & CO., P.C.

James B. Marshall, III
Principal

Sarah V. Chandler
Senior Manager

Confirmed on behalf of the addressee:

_____
Signature

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MEMORANDUM

DATE: October 15, 2019

TO: Water Resources Board

FROM: Darren Gore

SUBJECT: Consider Terms to Sell Drinking Water to Marshall County for a Minimum Period of 5-years

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Summary

Marshall County desires to purchase 200,000 gallons per day of drinking water from Murfreesboro Water Resources for a minimum period of 5-years while they construct a new drinking water plant.

Background

I met with Marshall County representatives at Consolidated Utility District's (CUD) office on Thursday October 10th. Marshall County currently has a moratorium on building in their water system due to lack of capacity and inability to serve new development. Marshall County anticipates constructing a new drinking water plant but would like to purchase water for an interim period prior to completing this project. Marshall County is connected to CUD's water systems and had originally approached CUD about purchasing 200,000 gpd of drinking water from them. CUD's board is reluctant to sell water to them due to the outstanding, unexecuted Water Supply contract with the Corps of Engineers on J. Percy Priest reservoir.

I have spoken to Alan Cranford and discussed our ability to supply an additional 200,000 gpd into CUD's system and there are no challenges that he can foresee. 200,000 gpd represents 1% of the Stones River Water Treatment Plant's production capacity, or 20 MGD. MWRD's future requirement, under water restrictions during a drought in 2035, is a yield of 15.14 MGD; 200,000 gpd represents 1.3% of that total. MWRD is currently contracted with the Corps for 12.9 MGD during a drought period; 200,000 gpd represents 1.6% of that total.

Prior to preparing a contract for selling water to Marshall County, I would request approval of the basic terms from the Board. The terms would be as follows:

- Limit the contract to 5-yrs with one, 2-year renewal options beyond the initial 5-yr term, for a total maximum of 7-yrs.
- Limit the flow to a maximum of 216,000 gallons per day, or 150 gallons per minute.

- Restrict the flow to coincide with MWRD's nonessential use reductions goals when a drought is declared by the Mayor.
- Sell the water based on MWRD's wholesale rate as determined by our annual audit plus 10%.
- Adjust the sale price annually per the audit to reflect any adjustments to MWRD's wholesale costs.

I would expect that CUD will determine their transmission costs to Marshall County's system and enter into a separate agreement with Marshall County, so MWRD's contract would, I expect, be contingent upon Marshall County agreeing to CUD's terms and conditions for transmission.

If the Board is agreeable to these preliminary terms, I will work with our Legal Department to construct a draft contract for sale of drinking water with Marshall County and work with them to finalize a contract for review and approval at the next Board meeting.

Fiscal Impact

MWRD's cost of producing water is roughly $1.00 per thousand gallons. Selling 200,000 gallons per day to Marshall County with a 10% adjustment is anticipated to generate roughly $220 per day, or $80,300 per year to MWRD's water sales revenue.

Recommendation

Staff recommends that the Board approve the basic terms of selling water to Marshall County and allow staff to draft a contract for recommendation to City Council.

Attachments

None

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MEMORANDUM

DATE: October 14, 2019

TO: Water Resources Board

FROM: Alan Cranford

SUBJECT: Mill Street, Tiger Hill and Halls Hill Storage Tank Repair and Recoating Project
Stones River Water Treatment Plant

Background

At the April 2019 Board Meeting, Staff brought an estimate for three (3) tanks that need recoating (repainting). The Mill Street tank is a two (2) million-gallon steel elevated storage tank and was constructed in 1973, the Tiger Hill tank is a three (3) million-gallon steel ground storage tank and was constructed in 1983 and the Halls Hill tank is a three (3) million-gallon concrete ground storage tank and was constructed in 1981.

The estimate provided to the Board at the April meeting for providing the design, bidding and construction phase services for repair and recoating the Mill Street, Tiger Hill and Halls Hill tanks was $169,595. The estimate for the cost of all tank work was $2,370,000. The total estimate for the entire project was $2,539,595. In preparation for the bid, scheduled for November 5, 2019, SSR refined the estimate. The greatest change in the April 2019 estimate was based upon the tank evaluation from Crom Corporation provided in September 2019.

In May 2019, a representative from the Crom Corporation inspected the exterior and interior of the three (3) million-gallon concrete storage tank that they built in 1981. During the exterior and interior inspection, it was noted that there are several major issues requiring repair (see below).

In the interior of the tank, where the wall meets the floor, the transition will need a considerable amount of work due to age and spalling of the concrete. In this area, where the white arrow is pointing, the membrane is exposed, and chlorine is damaging it.

Fiscal Impact

The estimate for providing the design, bidding and construction phase services for repair and recoating the Mill Street, Tiger Hill and Halls Hill tanks has not changed and is $169,595. A construction contingency has been added in the amount of $175,000. The updated estimate for the cost of all tank work is $2,421,300. The total estimate for the entire project is $2,765,895. Funding has been programmed into the FY20 CapEx.

Recommendations

Staff recommends the Water Resources Board recommend to the City Council approving the updated Engineer's Estimate of Probable Construction Costs for the FY20 CapEx.

Attachments

SRWTP Engineer's Estimate of Probable Construction Costs

Engineer's Estimate of Probable Construction Costs
MWRD Tank Recoating Project
SSR No. 18-41-021.0
Murfreesboro, TN

October 7th, 2019

DESCRIPTION		COST
Tiger Hill Tank Recoating	$	603,000
Mill Street Tank Recoating	$	1,442,000
Halls Hill Tank Repairs and Recoating	$	376,300
Construction Contingency Allowance	$	175,000
Design and Construction Engineering Services	$	169,595
TOTAL ESTIMATED ENGINEERING & CONSTRUCTION COST	$	2,765,895

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MEMORANDUM

DATE: October 22, 2019

TO: Water Resources Board

FROM: Darren Gore

SUBJECT: Overall Creek Pump Station Design and Construction Update

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SUMMARY

Update on the Overall Creek Pump Station hydraulic analysis, necessity to upgrade its capacity, and review of associated costs and timeline.

BACKGROUND

In December 2018, staff identified the need to upgrade the Overall Creek pumping station and highlighted that need in the Department's 2019-2023 capital improvements plan as an $8.85 million-dollar potential expenditure from the Department's working capital reserves.

The Board approved at the March 2019 meeting a task order for Smith Seckman and Reid (SSR) to study the sewer inflows into the station and any hydraulic upgrades that the pumps and associated force mains may need based on the analysis. A summary presentation will be provided at the Board meeting to review those findings.

SSR has also prepared a memo (attached) that better defines the necessary scope of work associated with the pump station and force main upgrades. Staff has prioritized the Overall Creek pumping station upgrades over constructing the new Northeast Regional pumping station. The costs associated with the upgrades have increased significantly based on SSR's estimate. The table below itemizes the costs; however, please note there is significant contingency included in the current opinion of project costs.

Summary of Opinion of Project Costs

Description	Opinion of Probable Cost
PS Expansion	$3,612,000
24-Inch Force Main	$4,896,000
Contingency (30%)	$2,553,000
Escalation to Mid-Point of Construction (3%)	$332,000
Total Probable Construction Cost	**$9,688,000**
Construction Testing and Special Inspections (1%)	$114,000
Permitting (0.2%)	$23,000
Engineering and Construction Administration (10%)	$1,140,000
Total Probable Project Cost	**$12,671,000**

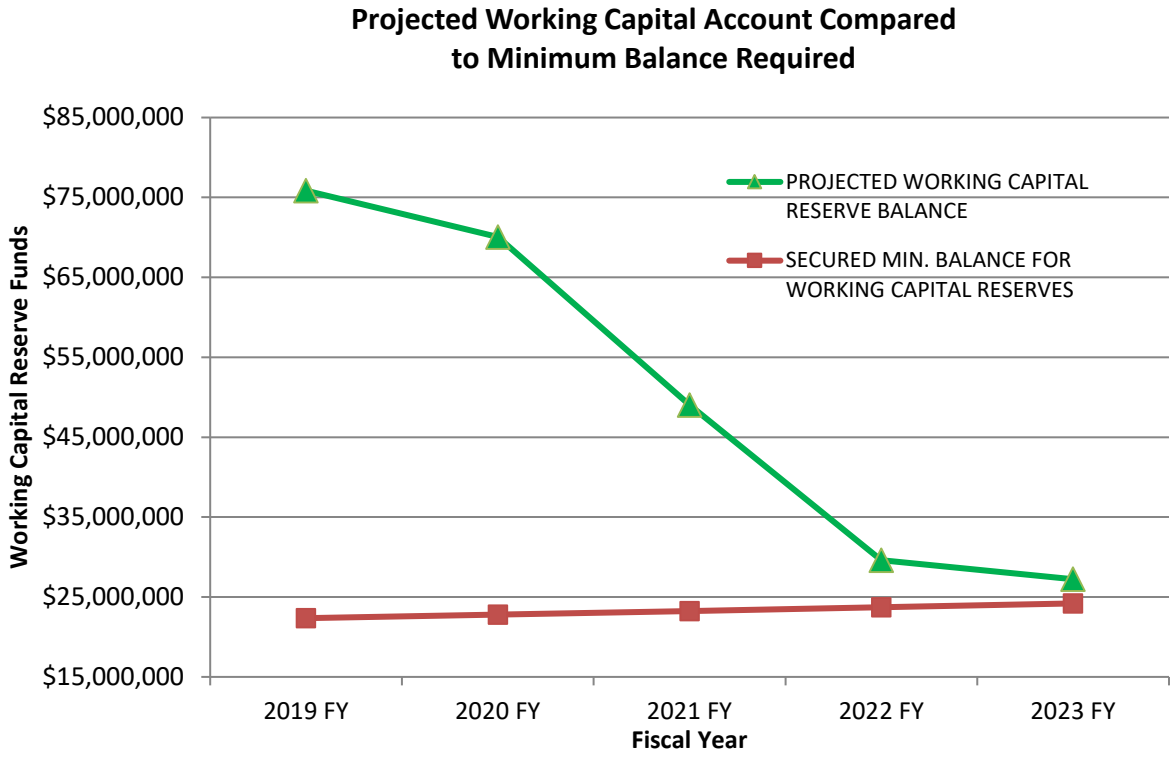
While these funds are designated to come from the Department's working capital reserves, staff will investigate funding this project through the TN Municipal League (TML) bond fund. We believe this project will take at least a minimum of twelve months (12) to design and another nine (9) months to acquire temporary construction easements for the force main.

RECOMMENDATION

No formal recommendation is being submitted with this update, but staff wanted to update the Board on the costs prior to bringing a task order from SSR for designing the necessary upgrades.

FISCAL IMPACT

The upgraded costs of $12.65M have been incorporated into the Department's 5-yr CIP and is attached in the dashboard. The increase in costs does not cause the Department to violate any of our working capital reserve financial policies based on our 5-yr pro forma as illustrated below.



ATTACHMENTS

SSR Overall Creek PS need for expansion memo dated 10/17/19

MEMORANDUM

To: Darren Gore

From: Brent Fowler

Date: October 17, 2019

Re: Need for Expansion and Opinion of Project Costs

Project Name: Overall Creek Pump Station (OCPS) #38 Expansion

Project Number: N/A

Darren,

Per your request, this memorandum provides supplemental information to the Overall Creek Pump Station (OCPS) Hydraulic Evaluation Technical Memorandum dated April 9, 2018. The original memorandum evaluated the pump operating conditions using various pumping and force main configurations. The April 9, 2018 memo also briefly discussed the potential need to expansion the pumping capacity. This memorandum focuses on the need to expand the OCPS providing background and supporting information, expansion recommendations, and anticipated project costs.

Background

According to the 2002 Revision of the Wastewater Facilities Plan (201 Plan) and the sewer information provided by the City's Geographic Information System (GIS) mapping, the existing 36-inch diameter Overall Creek interceptor sewer flowing to the OCPS has a full pipe capacity of 13.5 MGD. This pipe also has a maximum hydraulic capacity of 14.5 MGD and therefore, SSR recommends any expansion of the OCPS consider a minimum pumping capacity of 14.5 MGD.

The current AADF is approximately 2.5 MGD which is slightly less than half of the 201 Plan projected flow near year 2020. However, peak hourly flows have exceeded the station's pumping capacity on a few occasions and have reached slightly more than 10 MGD during one wet weather event. The OCPS has a rated capacity of 5.0 MGD and a maximum capacity of 7.4 MGD. Figure 1 below shows the inflow to the station and the "gap" between the interceptor maximum hydraulic capacity and the station's maximum pumping capacity. The pumping station maximum pumping capacity is exceeded during maximum day and peak hour flow events. Further, if one of the pumps is out of service during a wet weather event thereby reducing the station to its rated capacity of 5.0 MGD, sanitary sewer overflows are highly likely to occur. TDEC Design Criteria for Review of Sewage Works Construction Plans and Documents provides requirements for the station's rated capacity stating that "*At least two pump units should be provided, each capable of handling the expected maximum flow. The Division requires the submittal of pump head and system head curves. For three or more units the Division requires a design to fit actual flow conditions and must be of such capacity that, with any one unit out of services, the remaining units will have capacity to handle the maximum wastewater flow.*" The Overall Creek PS does not currently meet the TDEC standard for rated capacity.

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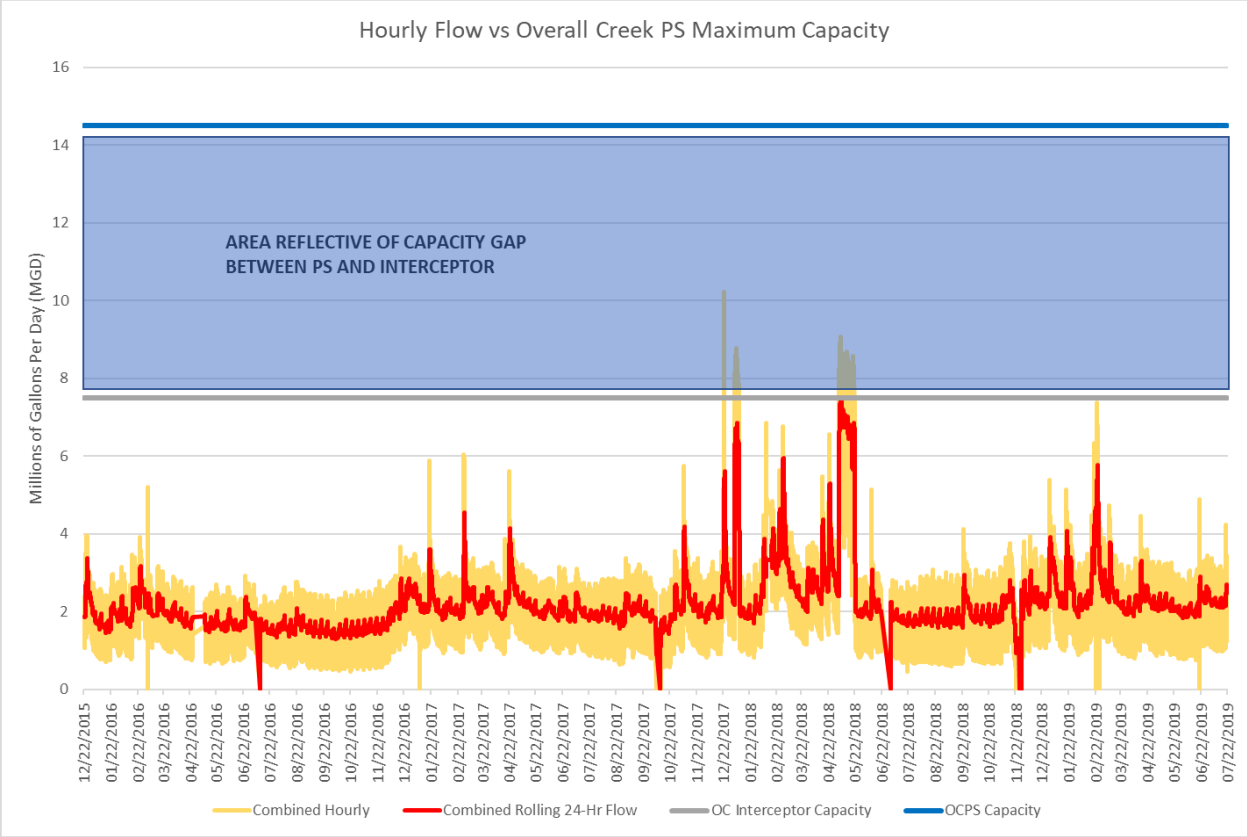
Figure 1 – OCPS Inflow and Pumping Capacity

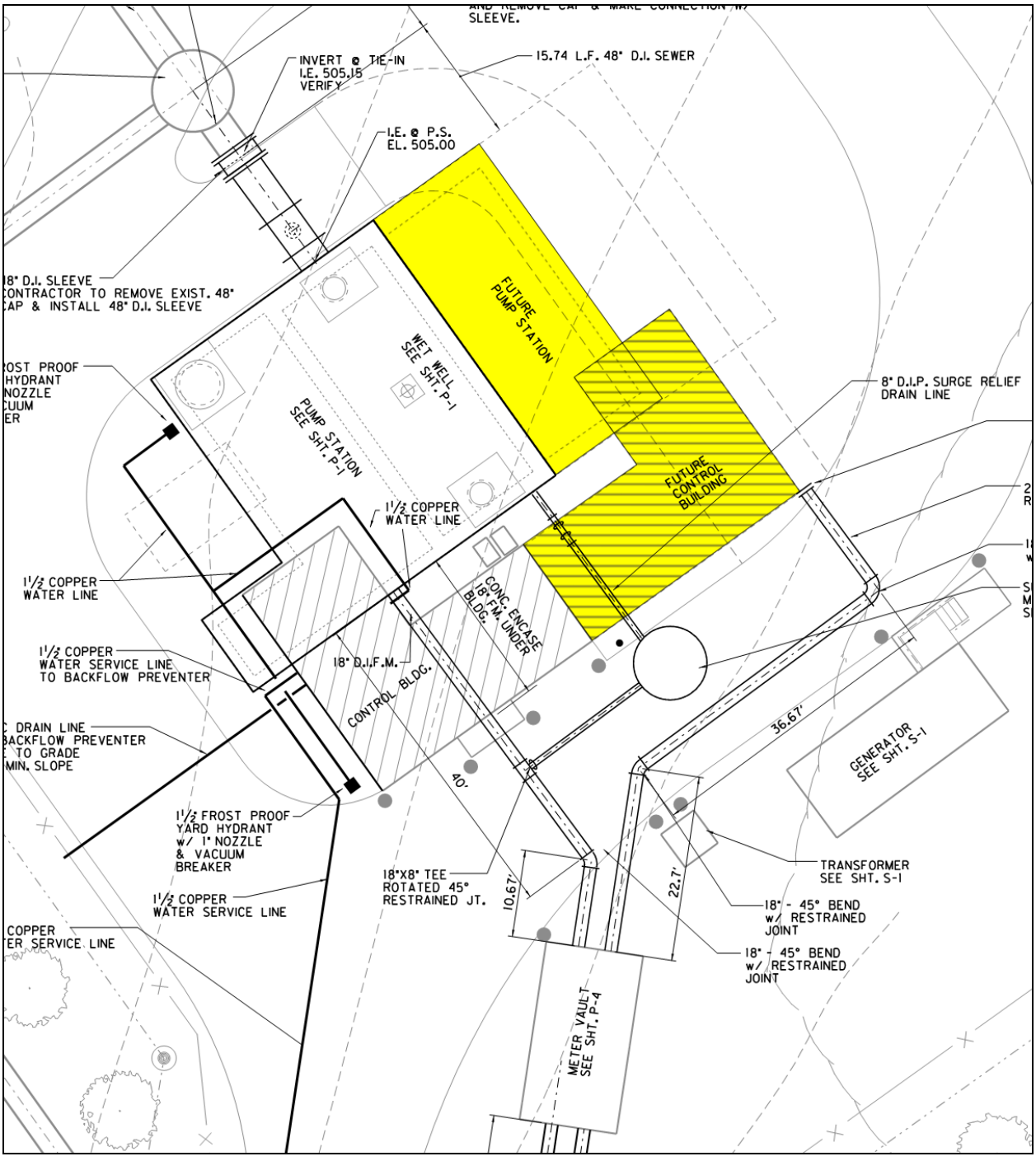


Recommendation

SSR recommends increasing the maximum pumping capacity of the existing station to a minimum total of 14.5 MGD by constructing a new drywell equipped with new pumps equal in size and speed of the pumps currently in operation which are Gorman Rupp T10 Series pumps with 14.75-inch impeller rotating at 1,450 revolutions per minute. Using the same pumps will allow for more efficient maintenance and less spare parts inventory. While installing pumps that rotate at a higher speed will provide a slight increase in maximum pumping capacity, SSR recommends matching the existing pumps. Rotating pumps at higher speeds typically equates to a shorter useful life.

Figure 2 below shows a conceptual layout of the expanded Overall Creek PS. The required new structures are highlighted in yellow.

Figure 2 – Expanded OCPS Concept Layout



Note that this recommendation is not supported by future basin population projections and a future flow projection study but simply on the available ADS flow data of current peak flow conditions and the maximum hydraulic capacity of the existing Overall Creek interceptor sewer.

To convey the increased pumped flow from the OCPS to the Water Resource Recovery Facility, approximately 17,000 linear feet of new force main must be installed. SSR performed a preliminary evaluation of the required force main configuration including removing the existing 14-inch force main and replacing it with a new 24-inch diameter force main and also installing a new 24-inch force main parallel to the existing 14-inch and 18-inch force mains. The resulting maximum expanded pumping capacities for these configurations are tabulated below.

FM Configuration	Maximum PS Capacity
Existing 14-inch FM replaced with new 24-inch FM	6.55 + 7.95 = 14.5
New 24-inch FM installed parallel to existing 14- and 18-inch FMs	7.42 + 7.95 = 15.4

The option of replacing the existing 14-inch diameter force main provides the needed maximum pumping capacity but with a significant risk. While the pipe is being replaced the existing pumping station will be limited to a capacity of 6.55 MGD thereby increasing the chances of sanitary sewer overflows. The risk of overflows may be reduced by replacing the existing 14-inch and installing the new 24-inch force main during the typically dry months of the year, but there is no guarantee the station will not be overwhelmed by a high flow event. Also, the time required to complete the construction will likely span into the typically wet months of the year increasing the chance of overflows. Also, excavating and removing the 14-inch force main will undoubtedly disturb the soils around the 18-inch force main. The soils must be recompacted around the pipe to ensure proper joint restraint is maintained.

Due to the high risk of overflows during construction and potential constructability issues, SSR recommends installing a new 24-inch diameter force main parallel to the existing 14-inch and 18-inch force mains. In addition to avoiding the risk of overflows, this force main configuration provides approximately 1 MGD of additional capacity for growth and a higher rated capacity of the station – 12.4 MGD versus 11.5 MGD. The existing permanent easement for the 14- and 18-inh pipes is 40-ft wide and appears wide enough to install a new force main possibly without disturbing the soils around the existing pipes.

The following table summarizes the opinion of project costs to expand the OCPS from a maximum capacity of 7.4 MGD to 15.4 MGD consisting of construction costs plus contingency, engineering, testing, permitting, etc. The OCPS expansion cost opinion presented herein is based on a new 4-pump dry-well for variable speed pumps, pump discharge piping and valves, new superstructure to house electrical and controls equipment, heating, ventilation and air conditioning equipment, facility plumbing, instrumentation and controls, controls integration, and approximately 17,000 linear feet of new 24-inch diameter force main. Land acquisition costs are not included in the project costs as the City owns the required property for the pump station expansion and the existing conveyance permanent easement appears to be wide enough for the new force main. Note that temporary construction easement will likely be required. Also, the opinion of cost assumes that the pump station drywell, superstructure and other appurtenances would match, as closely as possible, the existing facility.

The costs described in the following tables are Class 4 cost opinions as defined by the Association for the Advancement of Cost Engineering (AACE) International. The opinions of cost were developed from engineering judgement based on similar facilities and the known construction cost of the 2001 OCPS project adjusted to eliminate unnecessary scope items. Year 2001 OCPS construction costs were escalated to Year 2018 using Engineering New Record (ENR) construction cost indices. The expected accuracy range of these Class 4 cost opinions is -30 percent to +50 percent of the actual cost. This cost opinion consists of a +30 percent construction contingency. The final costs will depend on actual labor

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and material costs, competitive market conditions, final project costs, implementation schedule, and other variable factors. All costs are presented in 2019 dollars.

Summary of Opinion of Project Costs

Description	Opinion of Probable Cost
PS Expansion	$3,612,000
24-Inch Force Main	$4,896,000
Contingency (30%)	$2,553,000
Escalation to Mid-Point of Construction (3%)	$332,000
Total Probable Construction Cost	**$9,688,000**
Construction Testing and Special Inspections (1%)	$114,000
Permitting (0.2%)	$23,000
Engineering and Construction Administration (10%)	$1,140,000
Total Probable Project Cost	**$12,671,000**

Notes:

1. Costs include Contractor's Overhead and Profit.
2. Escalation costs are based on recent (June 2019) ENR cost indices.
3. Costs are rounded up to the nearest thousand dollars.
4. Land acquisition costs are not included as Murfreesboro owns the necessary property for the pump station and the existing pipeline permanent easement is assumed to be wide enough or the new force main. Note that temporary construction easement will likely be required.
5. Costs are presented in FY2019 US dollars.

If you need additional information, please contact us.

Attachments:

1. Technical Memorandum – Overall Creek PS Evaluation.

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WATER RESOURCES

DASHBOARD PERFORMANCE

September 2019

MWRD FY2019-2023 CIP

NO.	PROJECT	2018-2019 2018	2019-2020 2019 Issue	2020-2021 2020 Issue	2021-2022 2021 Issue	2022-2023 2022 Issue	TOTAL
	Construction- Northeast Regional PS & Force Main						$0
	Construction- Biosolids Processing Equipment						$0
	TOTAL Capital Improvements funded from **Debt Service**	$0	$0	$0	$0	$0	$0

NO.	PROJECT	2018-2019 2019 FY	2019-2020 2020 FY	2020-2021 2021 FY	2021-2022 2022 FY	2022-2023 2023 FY	TOTAL
	Sewer rehab- Account 335	$1,400,000	$1,250,000	$1,250,000	$1,250,000	$1,250,000	$6,400,000
	Meters, Water/Sewer Taps, Hydrants - 280, 290, 300, 310	$435,000	$435,000	$435,000	$435,000	$435,000	$2,175,000
	Water lines- Account 320	$350,000	$350,000	$350,000	$350,000	$350,000	$1,750,000
	Sewer Lines - Account 330	$350,000	$350,000	$350,000	$350,000	$350,000	$1,750,000
	Biolsolids Processing Equip & Storage Sinking Fund	$500,000	$500,000	$500,000	$500,000	$500,000	$2,500,000
	Walter Hill Dam Repair/Remediation Sinking Fund	$125,000	$125,000	$125,000	$125,000	$125,000	$625,000
	Lift Station Replacement Sinking Fund	$250,000	$250,000	$250,000	$250,000	$250,000	$1,250,000
	NE Regional PS & FM Sinking Fund	$500,000	$500,000	$500,000	$500,000	$500,000	$2,500,000
	GAC Replacement	$110,000	$110,000	$110,000	$110,000	$110,000	$550,000
	Vehicle and Equipment Replacement	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$7,500,000
	TOTAL Capital Improvements funded from **Rates**	$5,520,000	$5,370,000	$5,370,000	$5,370,000	$5,370,000	**$27,000,000**

NO.	PROJECT	2018-2019 2019 FY	2019-2020 2020 FY	2020-2021 2021 FY	2021-2022 2022 FY	2022-2023 2023 FY	TOTAL
	W&S CAPITAL IMPROVEMENT PROJECTS						
	Misc FY19 Working Reserve Commitments	$1,800,000					$1,800,000
	Biolsolids Processing Equipment & Storage Addition	$1,000,000	$1,000,000	$8,500,000	$5,500,000		$16,000,000
	Overall Creek Pump Station Upgrade	**$50,000**	**$1,600,000**	**$6,000,000**	**$5,000,000**		**$12,650,000**
	NE Regional Engineering Design	$500,000	$1,500,000	$250,000	$250,000	$250,000	$2,750,000
	NE Regional P.S. & Force Main		$500,000	$2,500,000	$10,000,000	$7,500,000	$20,500,000
	Cherry Lane / Sazerac Sanitary Sewer		$1,000,000	$1,500,000			$2,500,000
	SR840 Interchange Area Sanitary Sewer	$200,000	$1,100,000	$1,100,000			$2,400,000
	Hwy96 Park Property Area Sewer		$300,000	$2,000,000	$2,000,000		$4,300,000
	MWRRF Wet Weather Treatment Train Impr		$50,000		$2,500,000	$2,500,000	$5,050,000
	Lift Station Rehab/Replacement (#9) Ransom Dr.	$935,000					$935,000
	Mill Street Painting, Halls Hill and Tiger Hill Tank Repairs		**$2,800,000**				**$2,800,000**
	WTP Membrane Replacement			$650,000			$650,000
	Direct Potable Reuse Demonstration			$150,000	$350,000		$500,000
	Stones River Water Qual Sampling / NPDES Permitting	$500,000	$150,000	$150,000	$150,000	$150,000	$1,100,000
	Subtotal CAPITAL PROJECTS	$4,985,000	$10,000,000	$22,800,000	$25,750,000	$10,400,000	$73,935,000
	TRANSPORTATION (Water/Sewer Imp.)						
	Bradyville Pike			$1,500,000	$1,500,000	$500,000	$3,500,000
	Jones Blvd Widening		$500,000	$500,000			$1,000,000
	Cherry Lane Repurified Main Extension (14,600 LF)		$825,000	$1,000,000			$1,825,000
	Cherry Lane Sanitary Sewer Construction	$75,000	$500,000	$1,500,000			$2,075,000
	SR 99 Widening- Old Fort to Cason Lane		$500,000	$500,000	$500,000		$1,500,000
	St. Clair St.		$500,000				$500,000
	John Rice Blvd & Rucker Lane		$200,000				$200,000
	Maney Avenue Reconstruction - Phase 2		$250,000	$250,000			$500,000
	Wilkinson Pike Reconstruction (MCP to TL)		$650,000	$650,000			$1,300,000
	Subtotal TRANSPORTATION PROJECTS	$75,000	$3,925,000	$5,900,000	$2,000,000	$500,000	$12,400,000
	REHABILITATION						
	Sewer Rehabiliation - Maintenance Contract	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$5,000,000
	INFORMATION TECHNOLOGY PROJECTS						
	IT/Computer Systems Hardware Upgrades	$50,000	$100,000	$100,000	$100,000	$100,000	$450,000
	Electronic Content Management (Scanning/Imaging)		$150,000	$150,000	$150,000		$450,000
	IT Design Services & Consulting	$100,000	$100,000	$100,000	$50,000		$350,000
	Comp Maintenance Management System (CMMS)		$400,000	$600,000			$1,000,000
	Subtotal INFORMATION TECHNOLOGY PROJECTS	$150,000	$750,000	$950,000	$300,000	$100,000	$2,250,000
	TOTAL Projects from **Working Capital Reserves**	**$6,210,000**	**$15,675,000**	**$30,650,000**	**$29,050,000**	**$12,000,000**	**$93,585,000**

PROJECTED RESERVE FUND BALANCE REVENUE (TAPS)	$7,200,000	$7,000,000	$7,000,000	$7,000,000	$7,000,000
SINKING FUND DEPOSITS TO RESERVES FROM RATES	$2,775,000	$2,625,000	$2,625,000	$2,625,000	$2,625,000
SECURED MIN. BALANCE FOR WORKING CAPITAL RESERVES	$22,351,742	$22,798,777	$23,254,752	$23,719,847	$24,194,244
PROJECTED WORKING CAPITAL RESERVE BALANCE	$75,848,239	$69,798,239	$48,773,239	$29,348,239	$26,973,239
FUNDS ABOVE SECURED MINIMUM BALANCE	**$53,496,497**	**$46,999,462**	**$25,518,487**	**$5,628,392**	**$2,778,995**

Prepared by: DGore

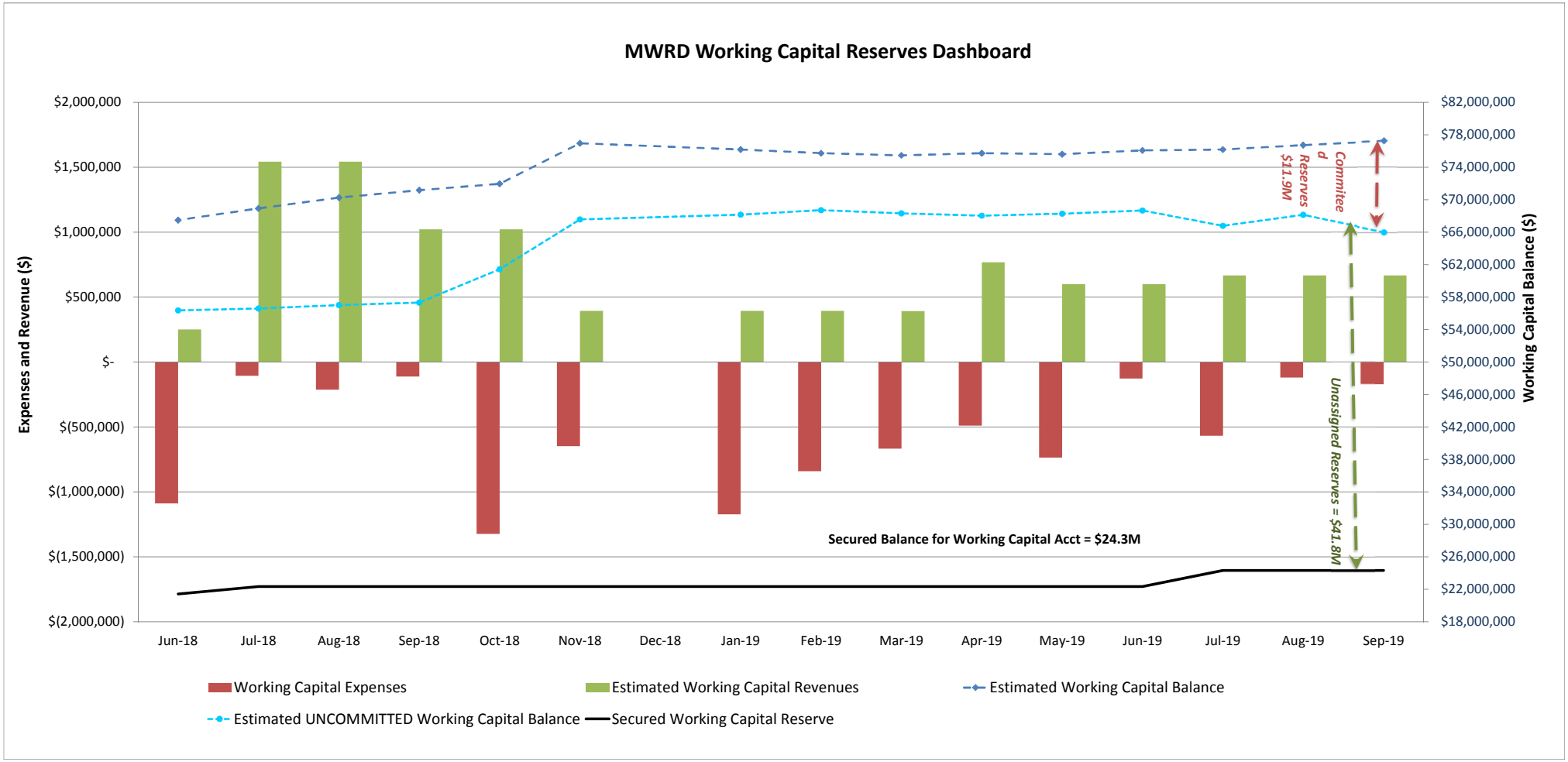
10/17/2019

EFFECTIVE UTILITY MANAGEMENT

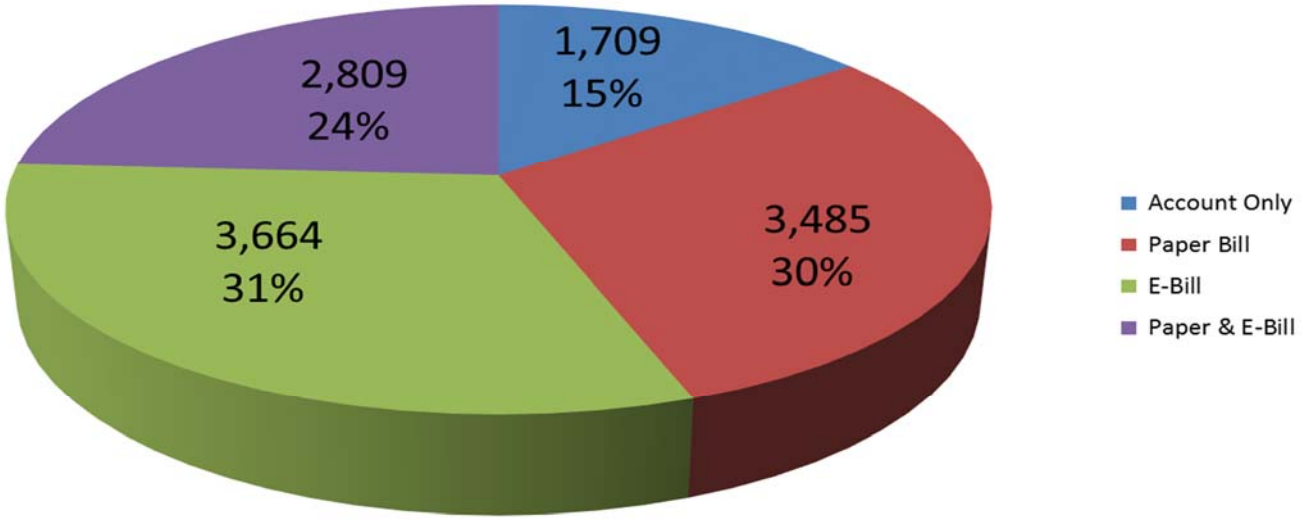
Financial Viability

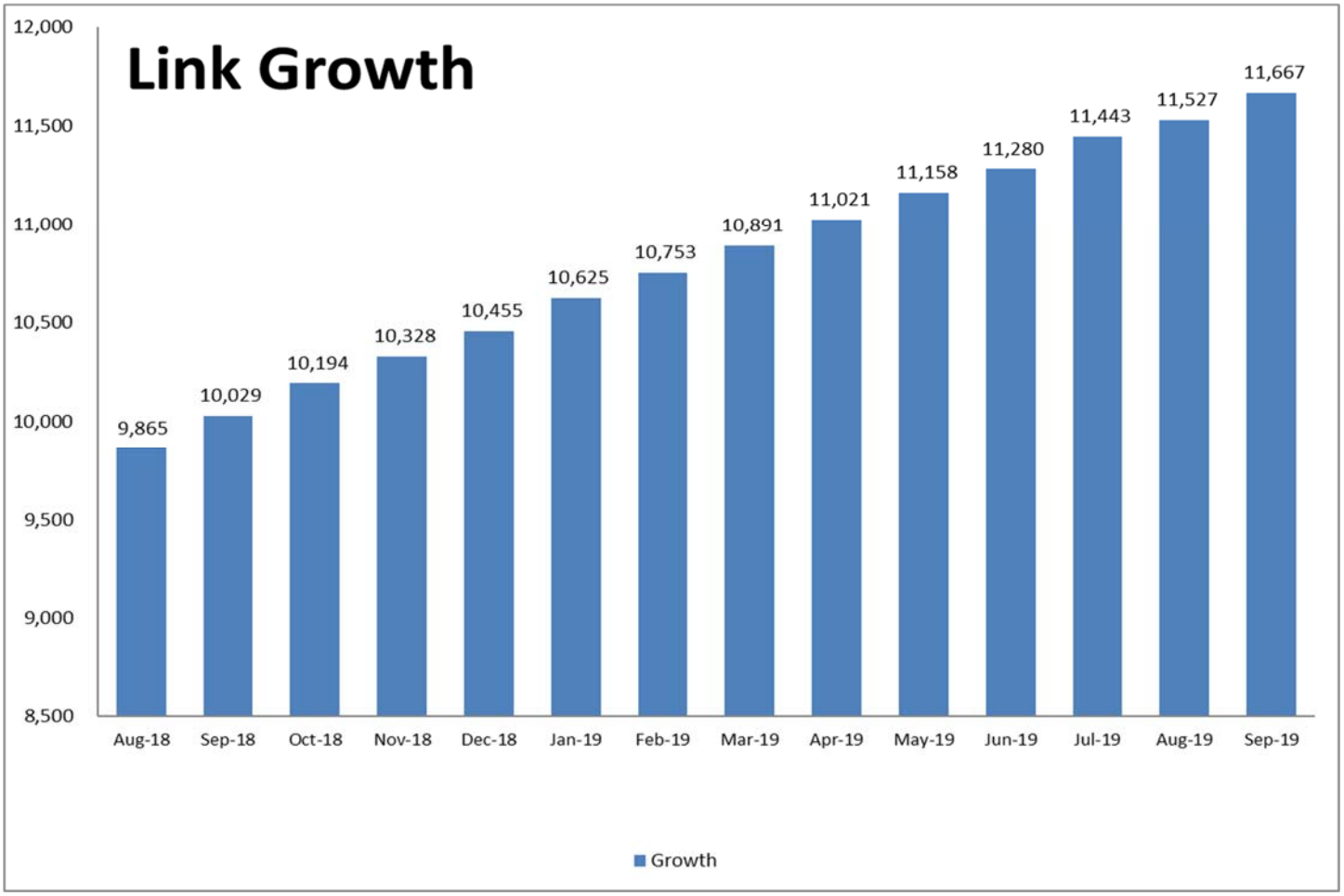
MWRD WORKING CAPITAL ACCOUNT SUMMARY

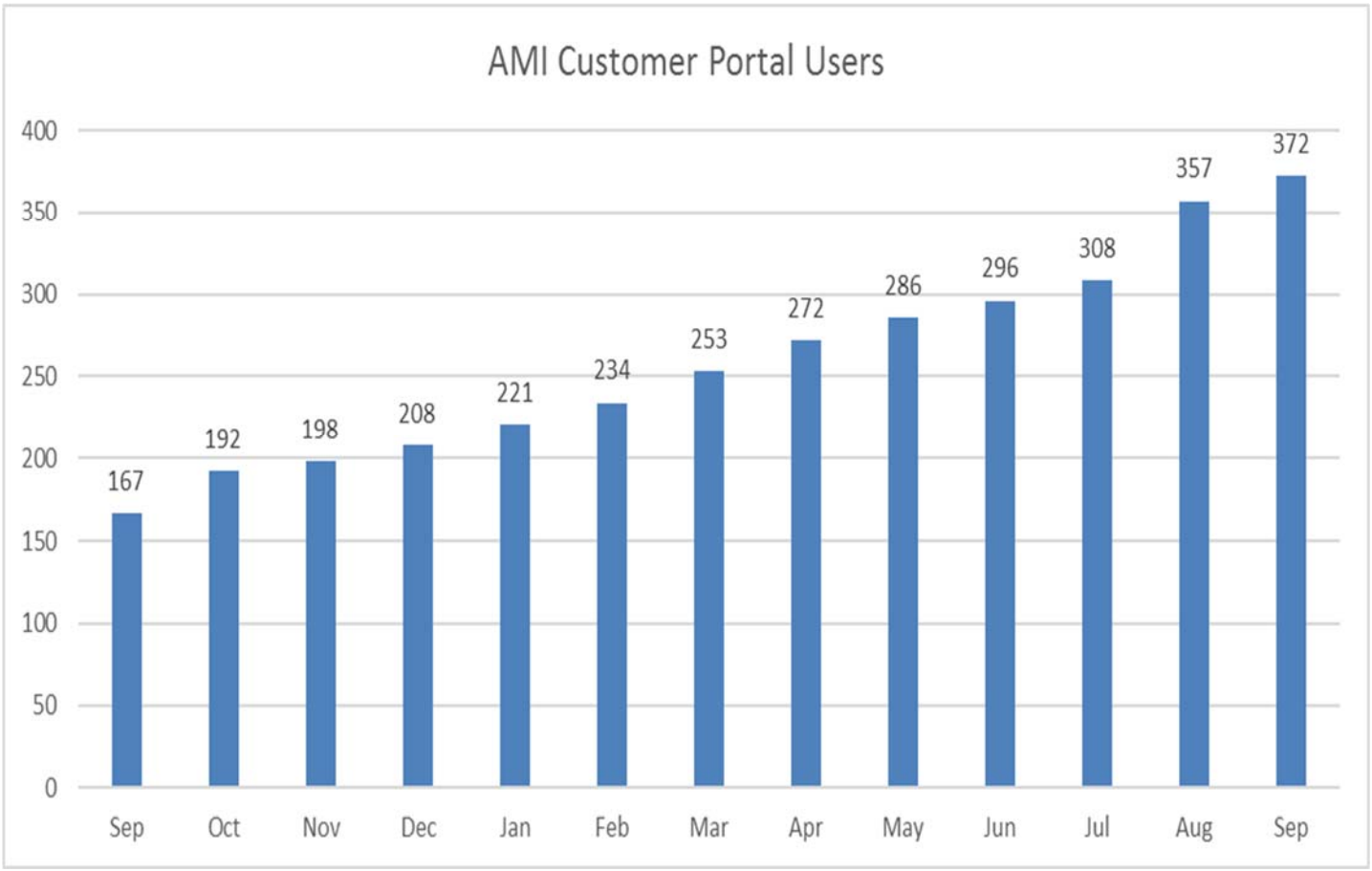
ESTIMATED Working Capital at 9/30/19			
Board Designated (System Dev, Assessments, etc) as of 6/30/18		$ 31,858,736	
Undesignated Excess Funds as of 6/30/18		41,978,125	
Estimated Reserve Revenue thru 9/30/19		11,340,343	
Estimated Reserve Expenditures thru 9/30/19		(7,062,207)	
			78,114,997
COMMITTED Reserves at 9/24/19			
CIA - Cherry Lane Ph2 Utility Design	108,000		
Hobas Pipe Sewer Inpsection - Vortex	185,401		
Westlawn Commercial S/D Sewer Participation	60,659		
SRWTP Trough Construction Joint Repair	54,519		
JBS TO 19-10 - Replace Cast Iron Drains SRWTP	15,264		
Walter Hill Dam Change Order #2	64,455		
ELI - Joe B. Jackson West P.S. and Sewer Design	39,000		
JBS Task Order 19-06 - #5 Raw Water Pump Repair	28,000		
Westwind Reserve Sewer Participation	105,631		
S&ME CCTV HOBAS Inspection	50,500		
Sanitary Sewer 2019/20 Rehabilitation Contract	3,812,301		
Hobas Pipe Materials Testing	11,720		
Waste Load Allocation Model Additions	75,000		
CIS Software Upgrade V4	343,000		
Walter Hill Dam Change Order #1	75,503		
Purchase of Two (2) Aerators at WRRF	255,348		
SSR Task Order - Mill, Tiger, Halls Hill Tank Painting	153,692		
SSR Task Order 201 Facilities Plan	207,373		
SSR Task Order WRRF Capacity Study	17,945		
SSR Task Order Overall Creek PS Capacity Study	17,426		
Biosolids Thermal Dryer Install (JBS & MR)	111,970		
Overall Creek P.S. Updgrades (VFD's)	351,042		
S&ME - 2019 Sewer Rehab Design	308,702		
WRRF Aerator 2A Gearbox Replacement	130,930		
Walter Hill Dam Remediation	56,223		
Biosolids Small-scale Thermal Dryer	216,250		
H-S Blackman Park Sewer Design	180,000		
SEC Jones Blvd Utility Design Proposal	14,225		
Northeast Regional PS & Conv - SSR	1,966,459		
Waste Load Allocation Study	78,200		
Bradyville Pike Utility Design - Neil-Schaffer	22,710		
Wilkinson Pike Utilties Design	10,190	9,127,638	
APPROVAL Requests at 10/22/19			
Commercial Painting SRWTP C.O. #1	19,913	19,913	
BALANCE of Working Capital at 10/22/19 after COMMITMENTS			**$ 68,967,446**
DESIGNATED Projects Pending			
Tank Painting (Mill, Tiger, Halls Hill)	2,800,000	2,800,000	
ESTIMATED UNCOMMITTED Working Capital Reserves as of October 22, 2019			**$ 66,167,446**
SECURED FY19-20 Operating and Maintenance Expenses			**$ 24,331,276**
UNASSIGNED Working Capital Funds (Est. Uncommitted - Secured)			**$ 41,836,170**

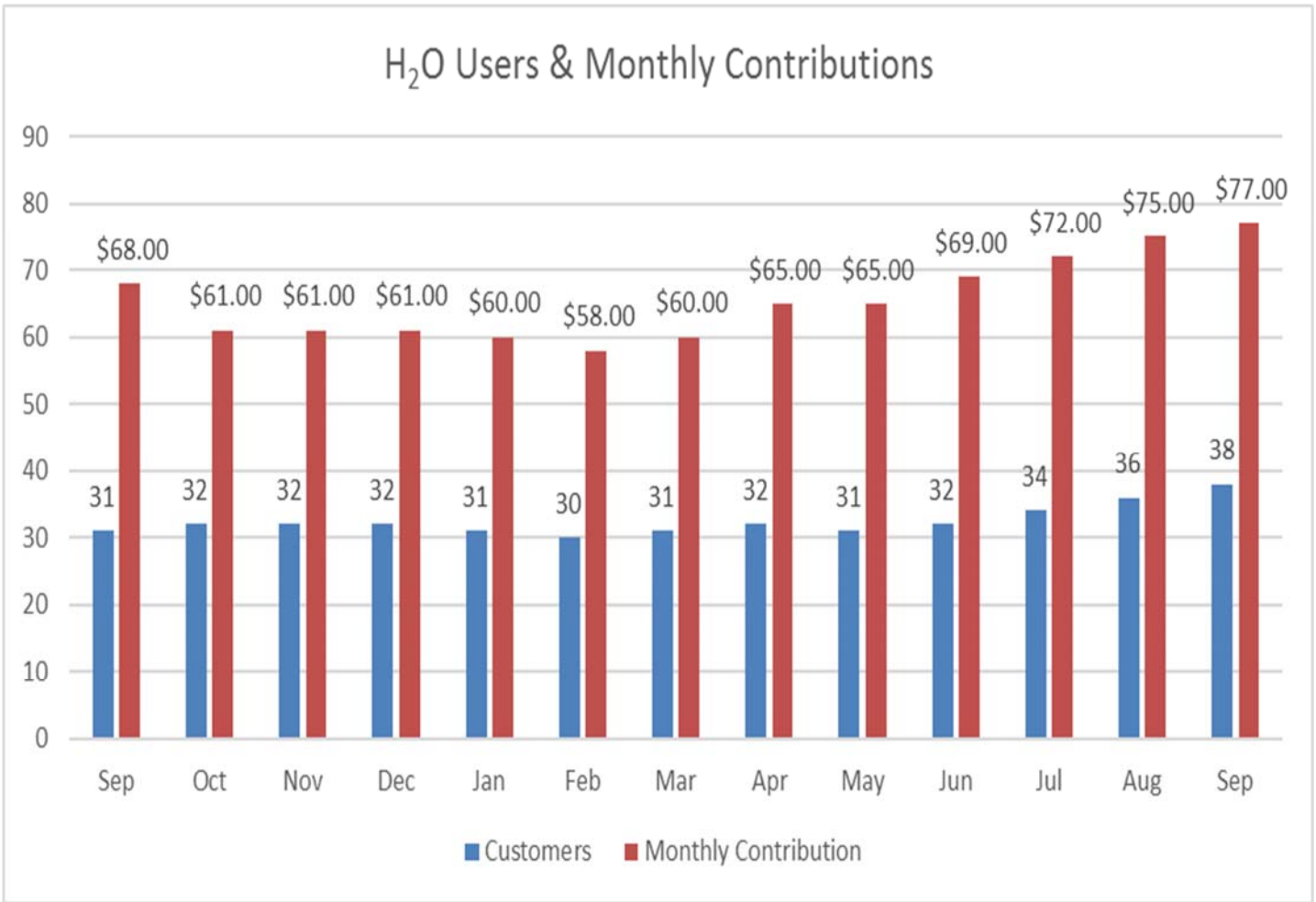

MWRD Working Capital Reserves Dashboard
Expenses and Revenue ($)
Working Capital Balance ($)
$2,000,000
$1,500,000
$1,000,000
$500,000
$-
$(500,000)
$(1,000,000)
$(1,500,000)
$(2,000,000)
$82,000,000
$78,000,000
$74,000,000
$70,000,000
$66,000,000
$62,000,000
$58,000,000
$54,000,000
$50,000,000
$46,000,000
$42,000,000
$38,000,000
$34,000,000
$30,000,000
$26,000,000
$22,000,000
$18,000,000
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Committed Reserves $11.9M
Unassigned Reserves = $41.8M
Secured Balance for Working Capital Acct = $24.3M
Working Capital Expenses
Estimated Working Capital Revenues
Estimated Working Capital Balance
Estimated UNCOMMITTED Working Capital Balance
Secured Working Capital Reserve

Infinity.Link Customers as of September 2019 = 11,667

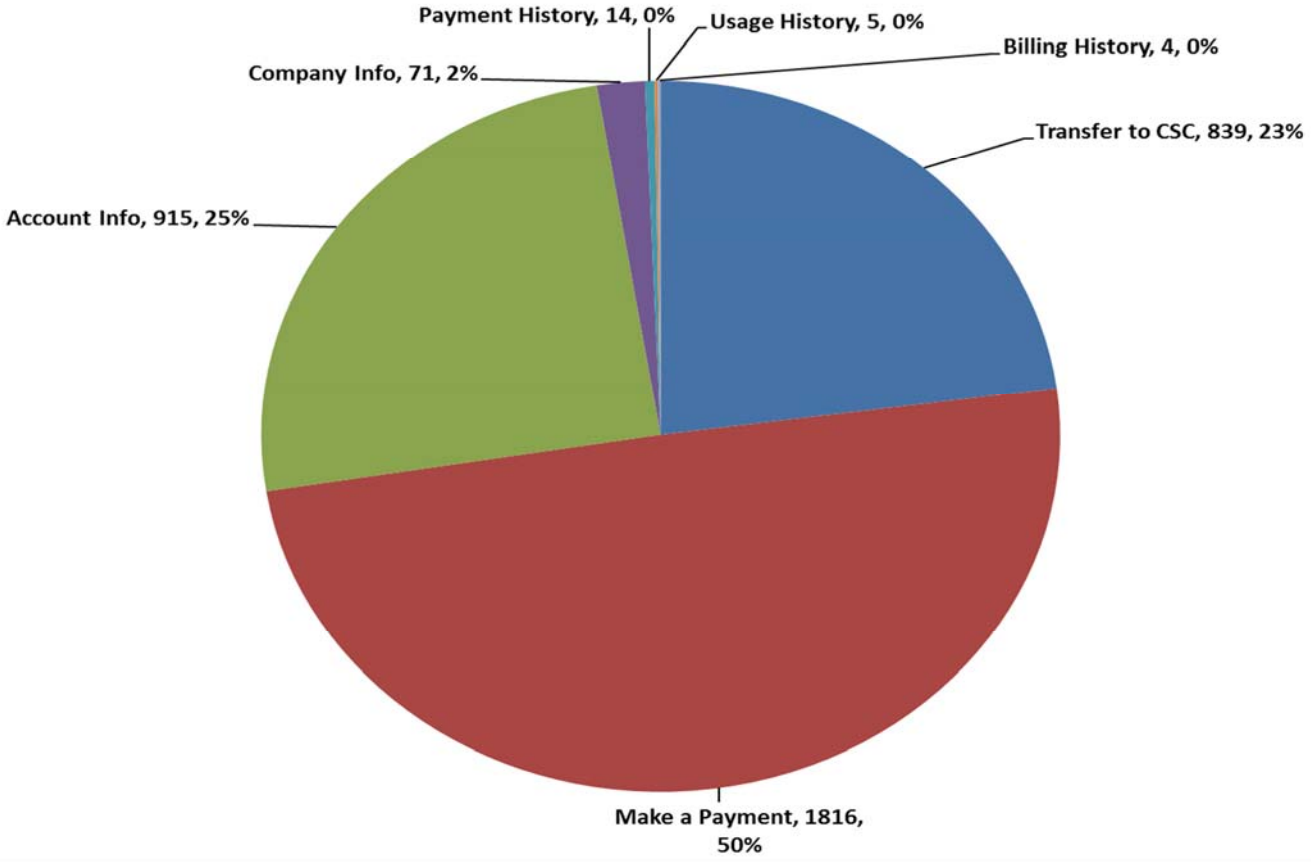




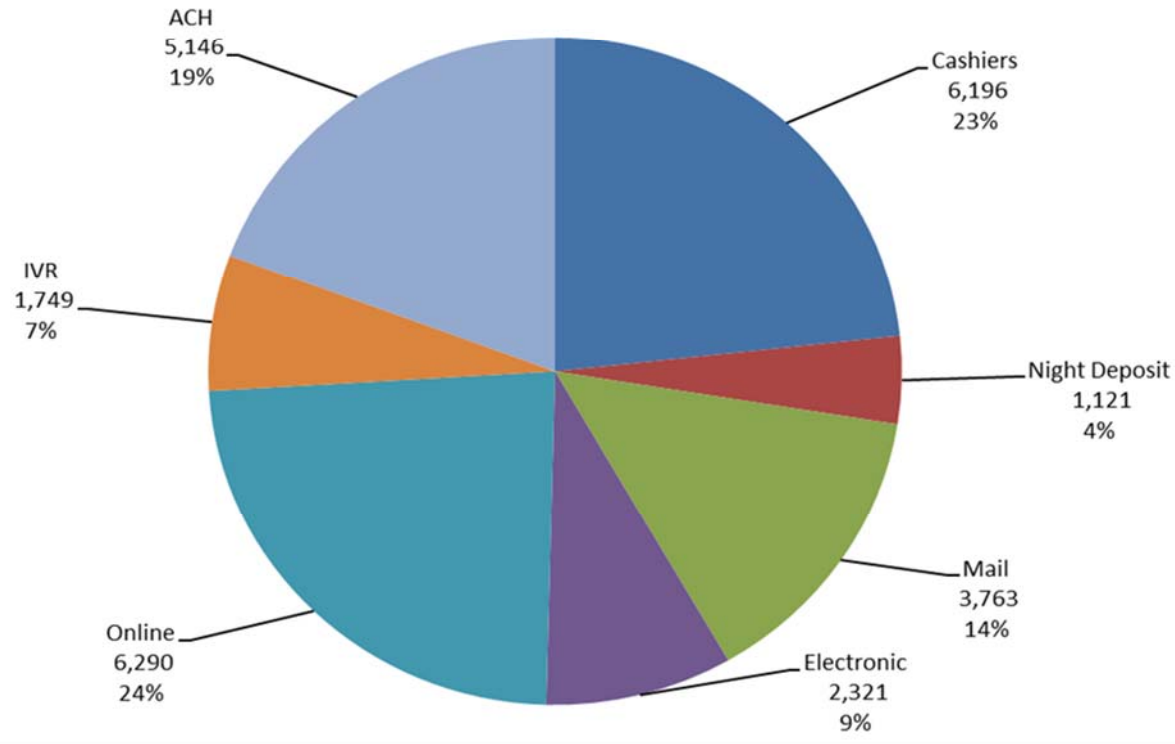

AMI Customer Portal Users
400
350
300
250
200
150
100
50
0
167
192
198
208
221
234
253
272
286
296
308
357
372
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

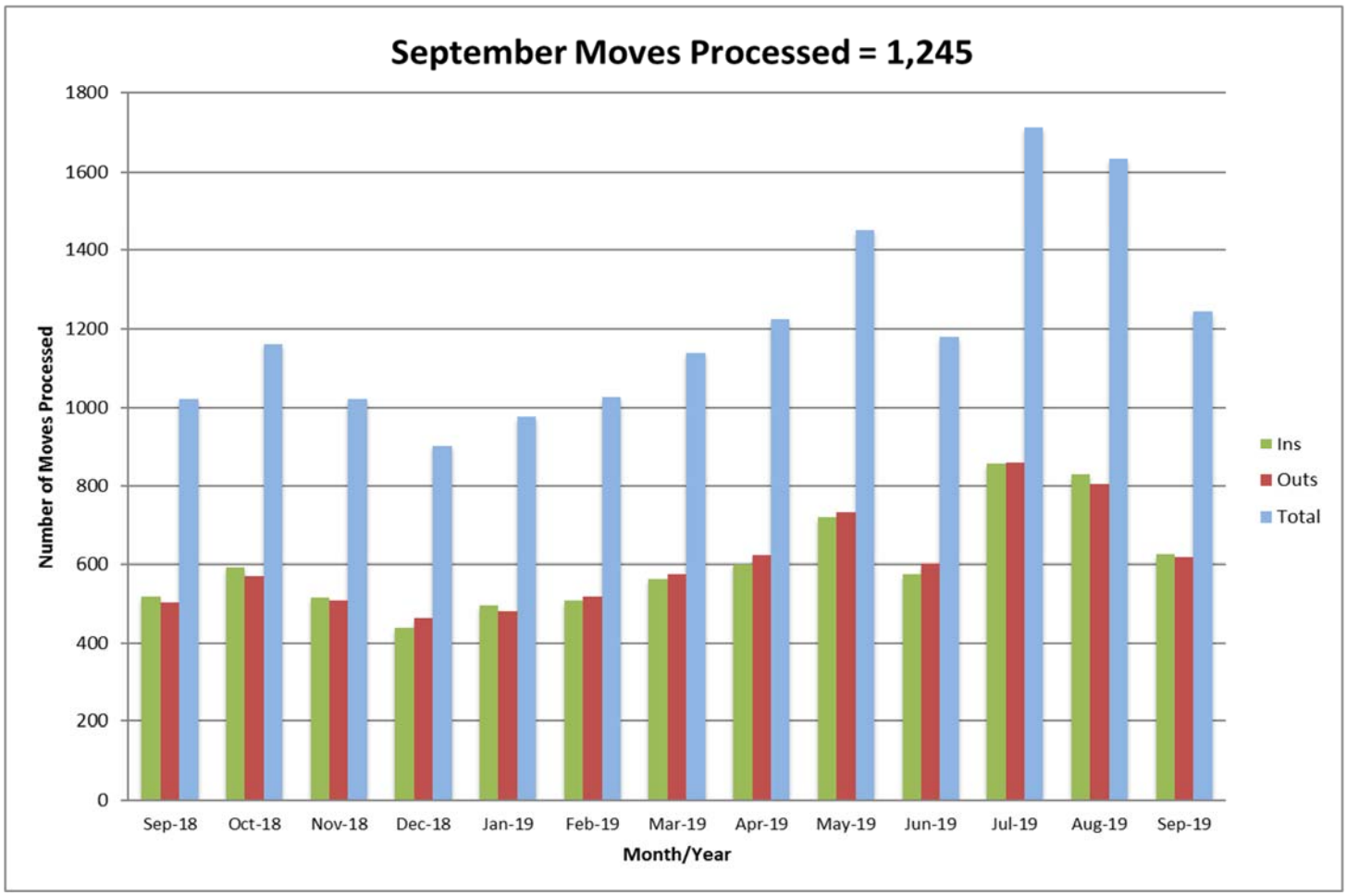

H2O Users & Monthly Contributions
90
80
70
60
50
40
30
20
10
0
$68.00
$61.00
$61.00
$61.00
$60.00
$58.00
$60.00
$65.00
$65.00
$69.00
$72.00
$75.00
$77.00
31
32
32
32
31
30
31
32
31
32
34
36
38
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Customers
Monthly Contribution

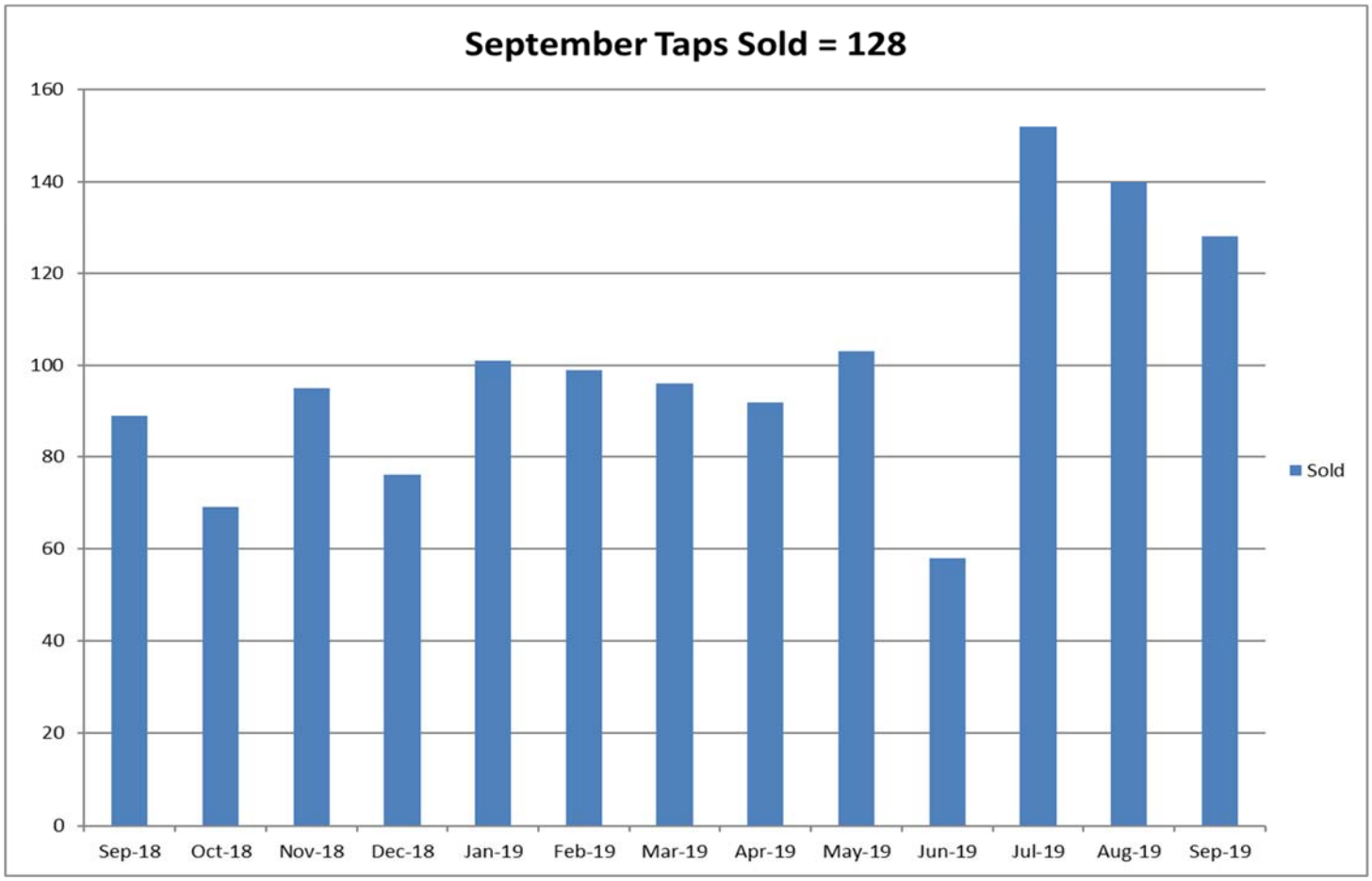
IVR Calls From 09/01-09/30/2019 = 3,664

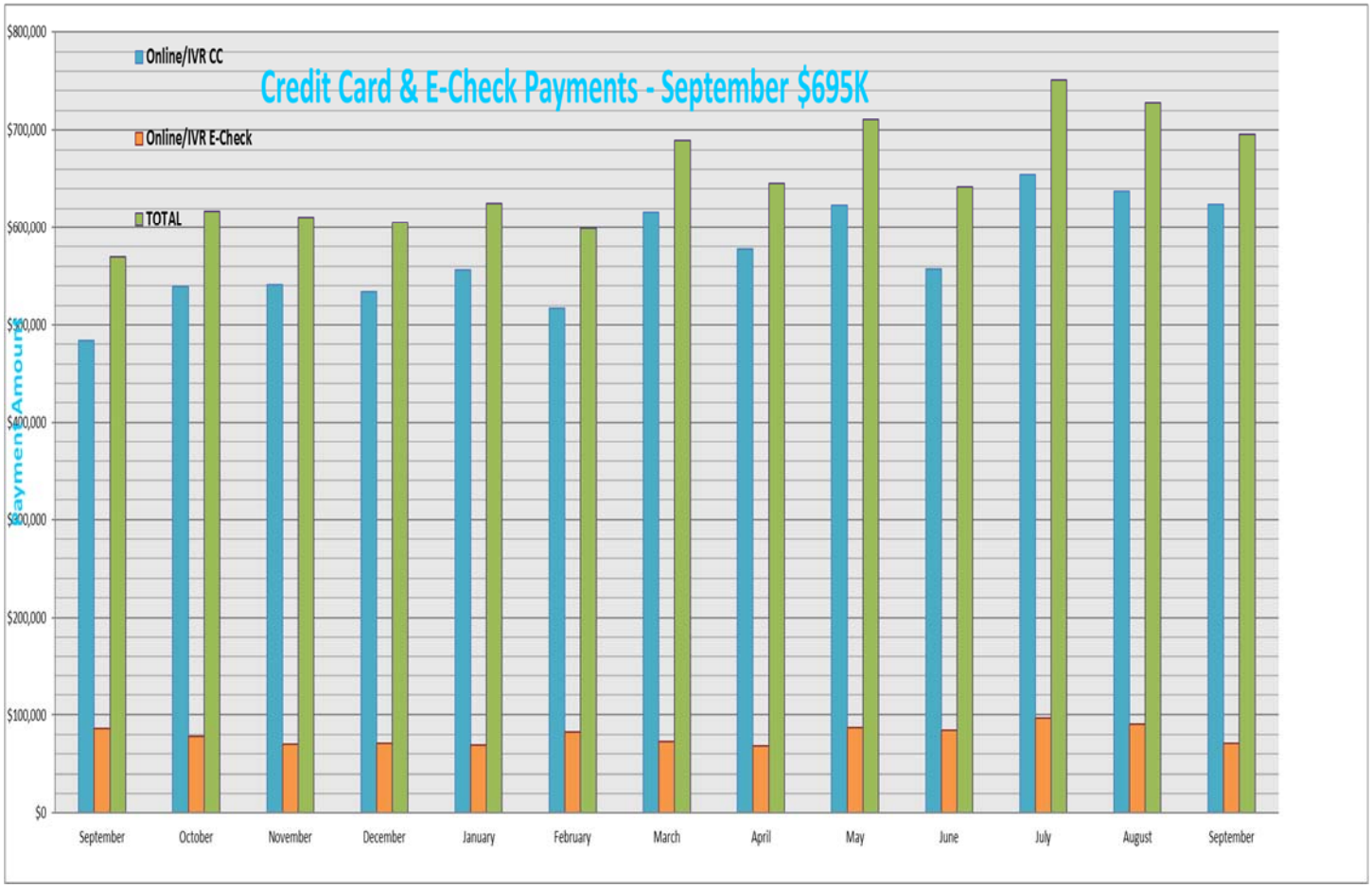


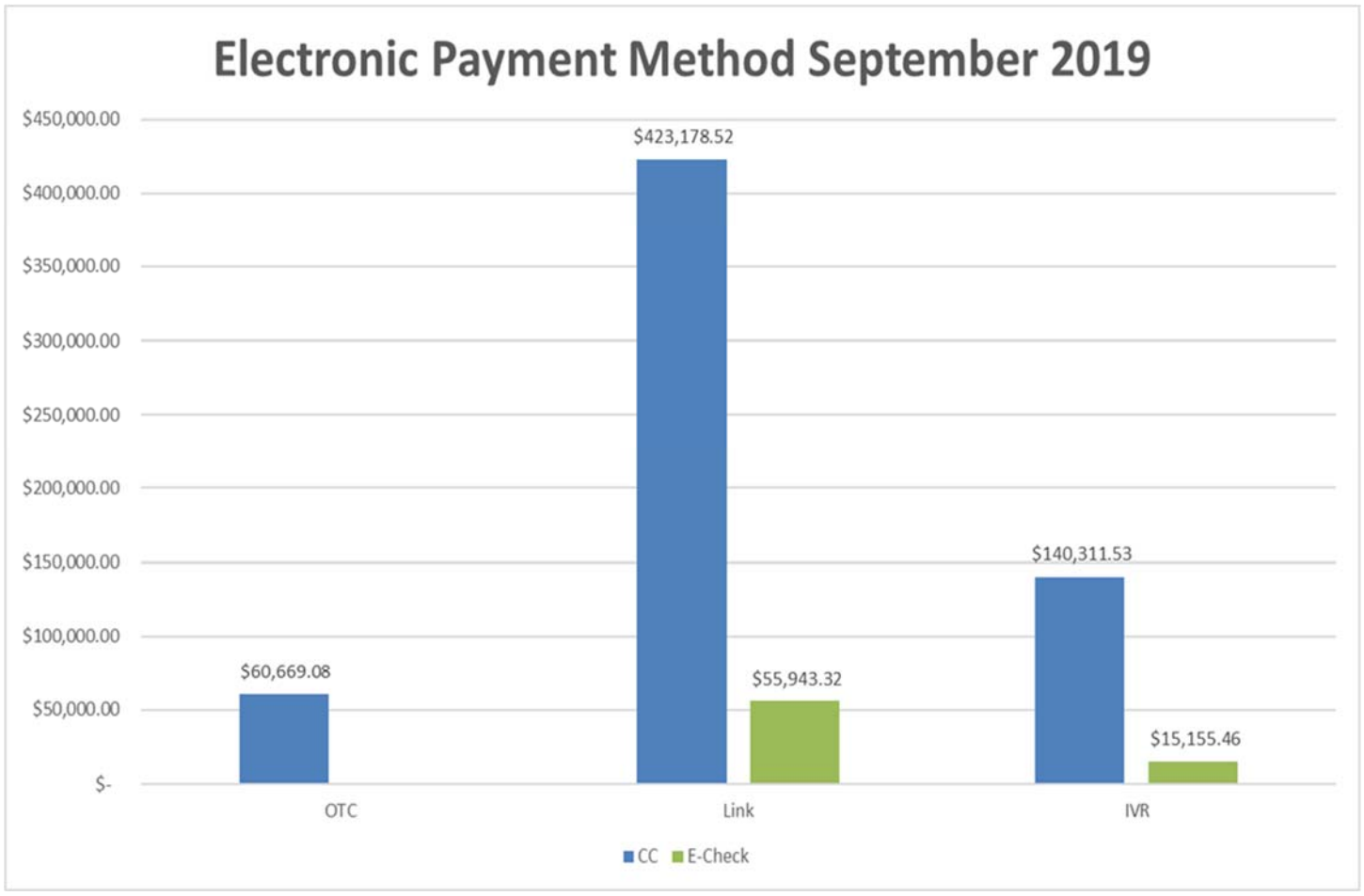
September 2019 Payments by Type

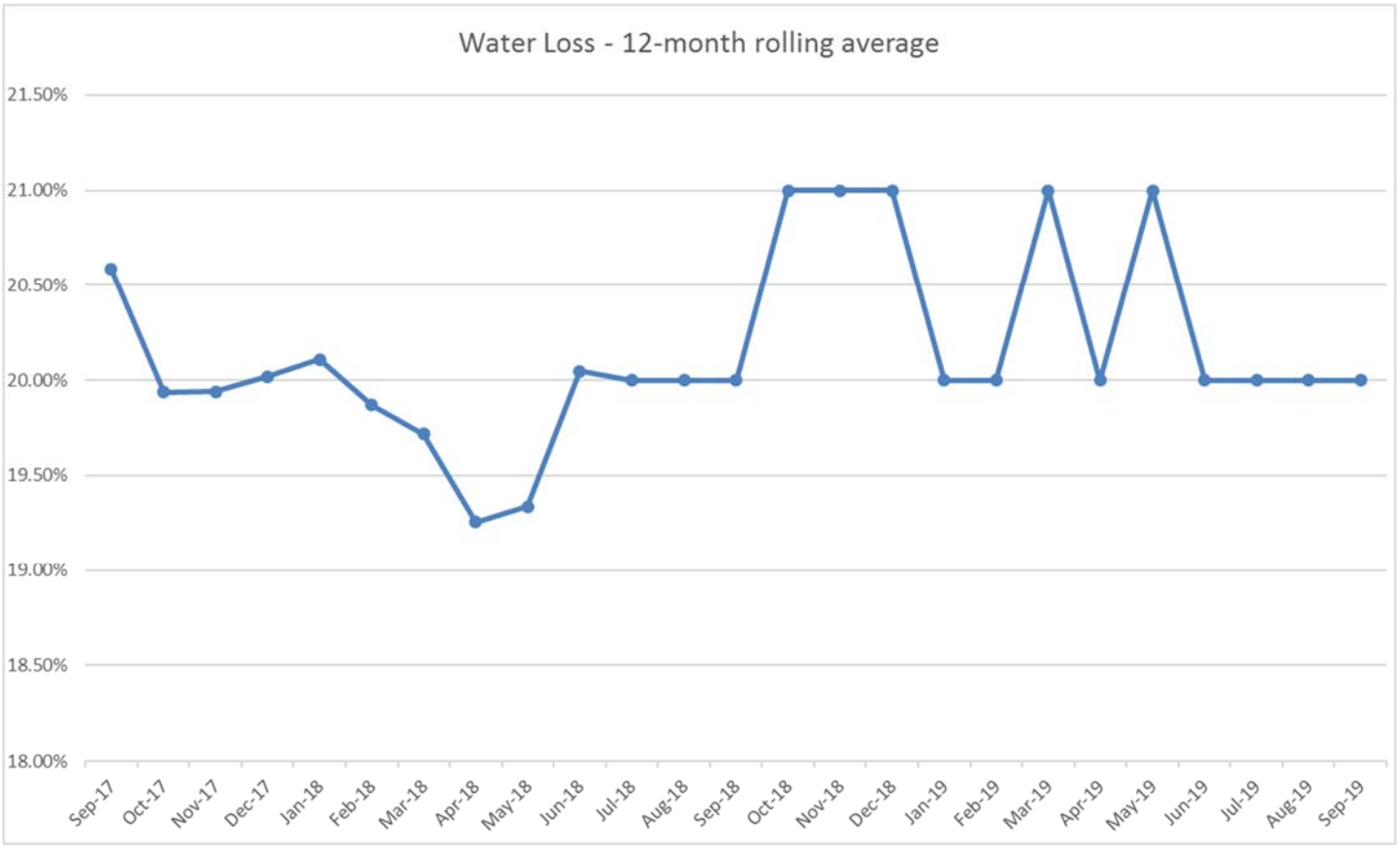



September Moves Processed = 1,245
Number of Moves Processed
1800
1600
1400
1200
1000
800
600
400
200
0
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Month/Year
Ins
Outs
Total


September Taps Sold = 128
160
140
120
100
80
60
40
20
0
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Sold


Credit Card & E-Check Payments - September $695K
Online/IVR CC
Online/IVR E-Check
TOTAL
Payment Amount
$800,000
$700,000
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
$0
September
October
November
December
January
February
March
April
May
June
July
August
September

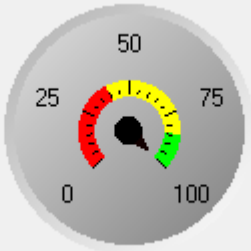
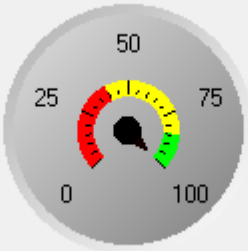

Electronic Payment Method September 2019
$450,000.00
$400,000.00
$350,000.00
$300,000.00
$250,000.00
$200,000.00
$150,000.00
$100,000.00
$50,000.00
$-
$60,669.08
$423,178.52
$55,943.32
$140,311.53
$15,155.46
OTC
Link
IVR
CC
E-Check


Water Loss - 12-month rolling average
21.50%
21.00%
20.50%
20.00%
19.50%
19.00%
18.50%
18.00%
Sep-17
Oct-17
Nov-17
Dec-17
Jan-18
Feb-18
Mar-18
Apr-18
May-18
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19

MURFREESBORO WATER RESOURCE RECOVERY FACILITY

DASHBOARD REPORT

September, 2019

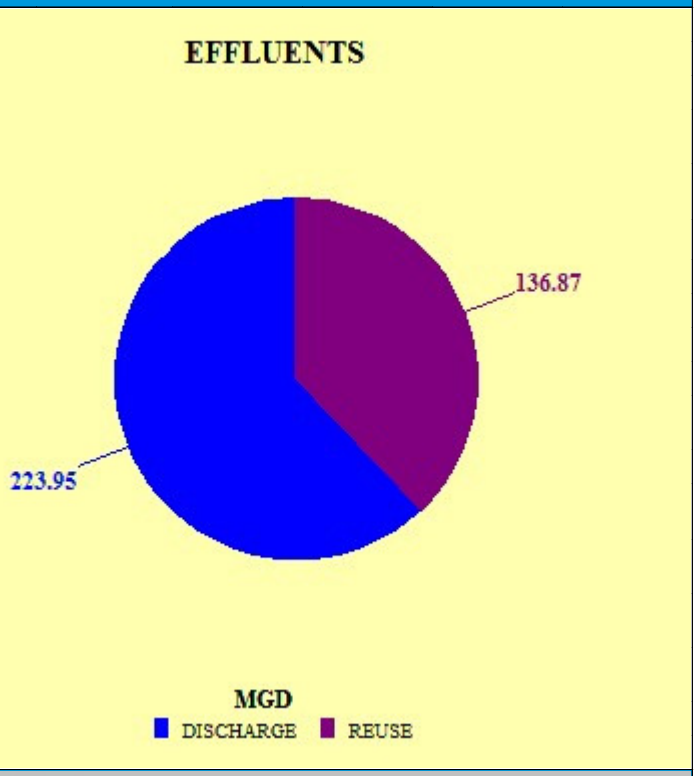
BOD PERCENT REMOVAL	AMMONIA PERCENT REMOVAL
	
99.3	99.7

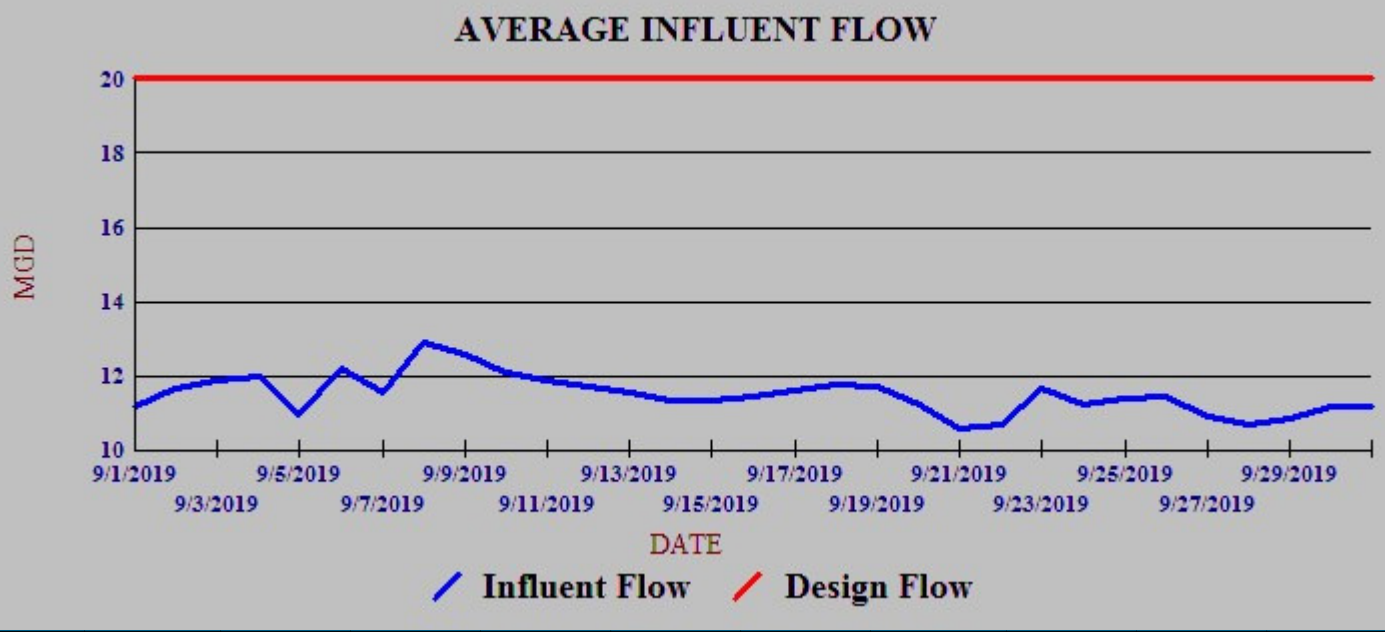
345.391

MILLION GALLONS TREATED

2,307.32

TONS BIOSOLIDS REMOVED



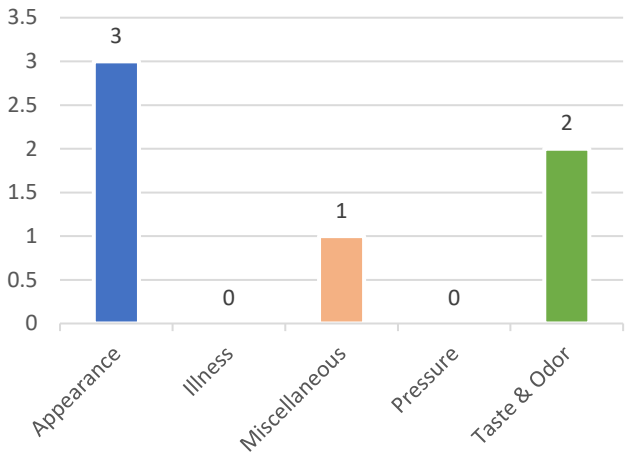


STONES RIVER WATER TREATMENT PLANT

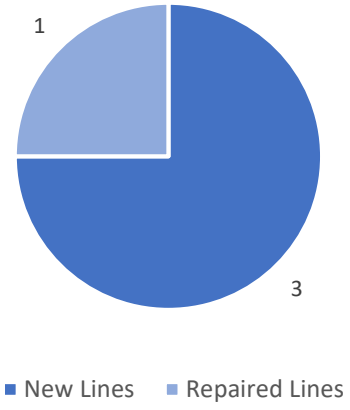
Dashboard Report

September 2019

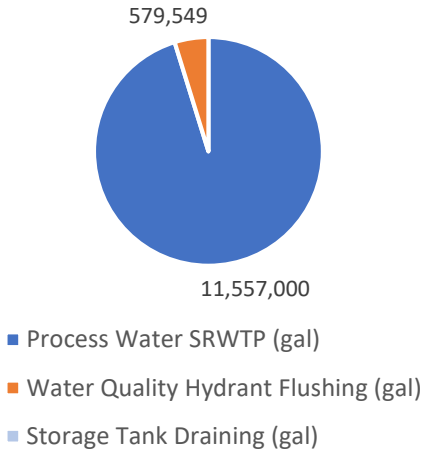
Drinking Water Laboratory Section
Water Quality Complaints



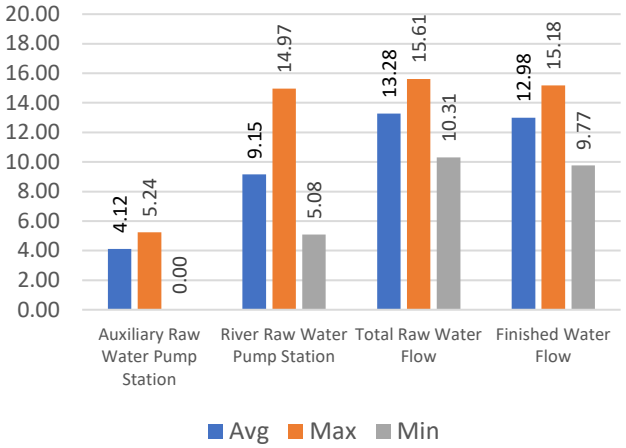
Drinking Water Laboratory Section
New & Repaired Lines Tested



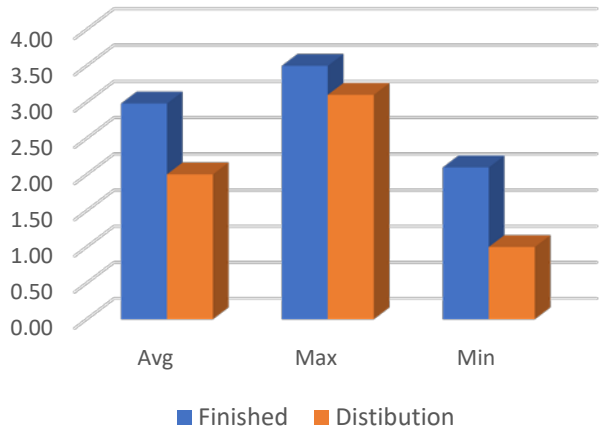
Water Quality
Water Used Not Sold



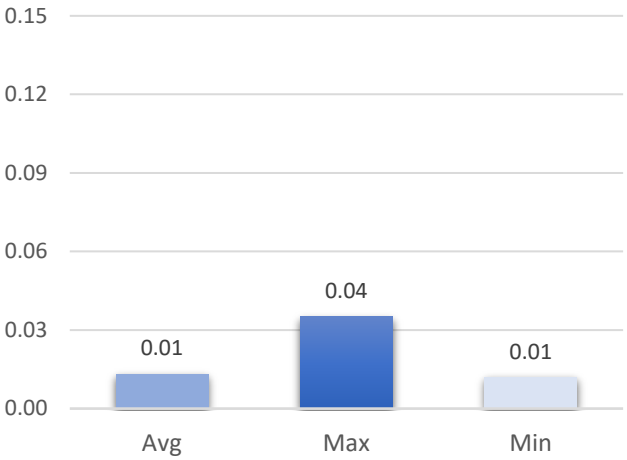
Plant Operations Section
Flow (MGD)



Plant Operations Section
Chlorine (mg/L)



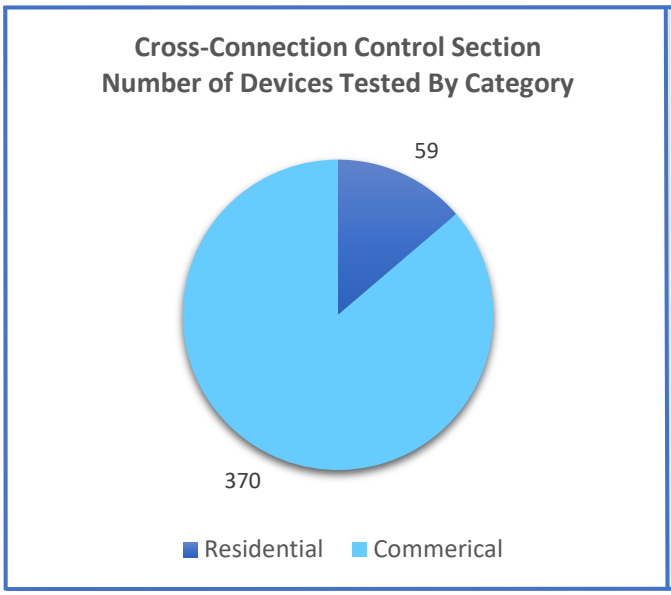
Plant Operations Section
Finished Turbidity (NTU)

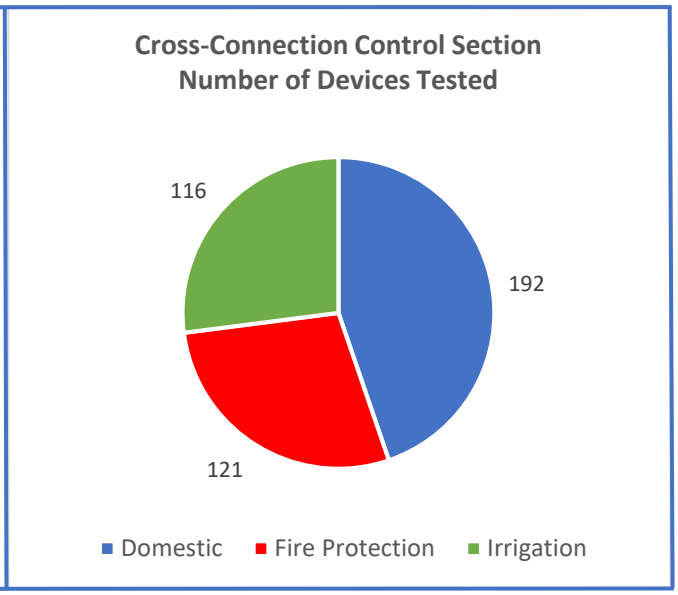


STONES RIVER WATER TREATMENT PLANT

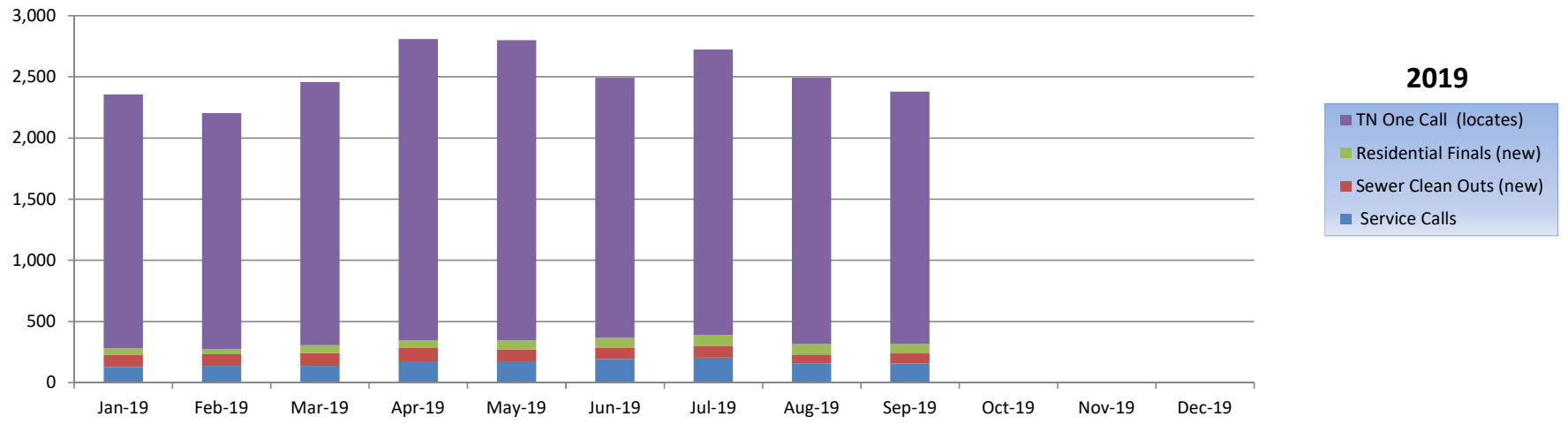
Dashboard Report

September 2019



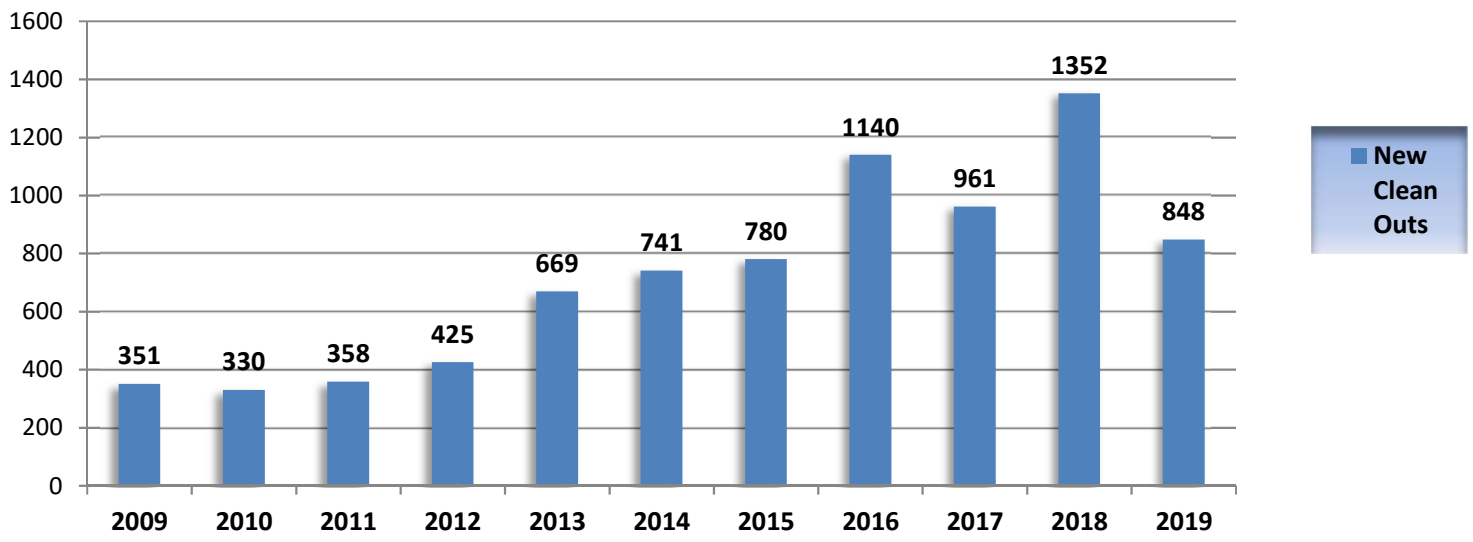


OPERATIONS & MAINTENANCE MONTHLY TOTALS



	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
Service Calls	129	138	139	168	176	193	205	159	156				**1,463**
Sewer Clean Outs (new)	100	95	104	115	97	91	93	72	85				**852**
Residential Finals (new)	52	41	65	65	76	84	93	86	75				**637**
TN One Call (locates)	2,076	1,931	2,150	2,463	2,452	2,125	2,334	2,177	2,064				**19,772**
TOTAL	**2,357**	**2,205**	**2,458**	**2,811**	**2,801**	**2,493**	**2,725**	**2,494**	**2,380**				**22,724**

NEW SEWER CLEAN OUTS



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
New Clean Outs	351	330	358	425	669	741	780	1140	961	1352	848

** For the calendar year Jan-Dec*

MWRD - OPERATIONS & MAINTENANCE

ASPHALT QUOTES

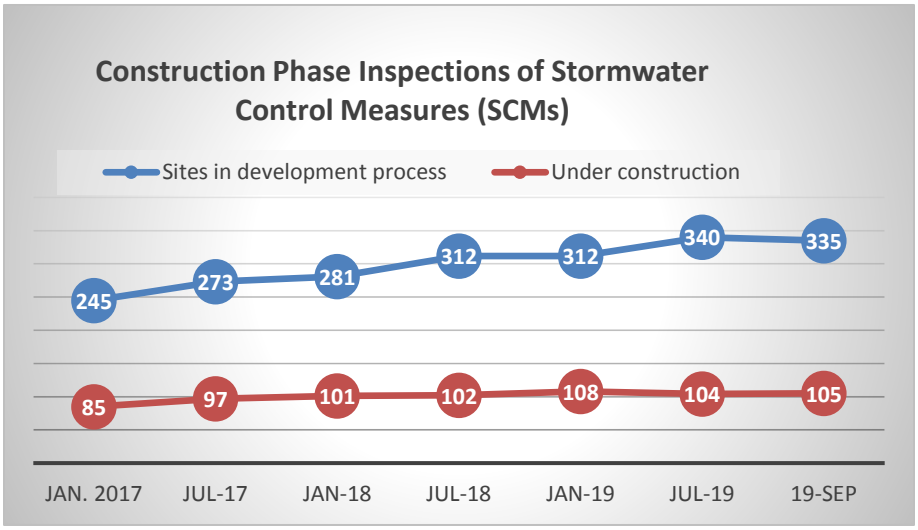
	Blue Water		Hawkins		Vulcan		Notes
	Binder	*Topping*	*Binder*	*Topping*	*Binder*	*Topping*	
Jul	*$49.00*	*$61.00*	$48.50	$60.50	$58.00	$67.50	
Aug	*$49.00*	*$61.00*	$48.50	$60.50	$58.00	$67.50	
Sep	*$49.00*	*$61.00*	$48.50	$60.50	$58.00	$67.50	
Oct	*$50.25*	*$66.25*	$49.98	$65.00	$58.00	$66.24	
Nov							
Dec							
Jan							
Feb							
Mar							
Apr							
May							
Jun							

MWRD OPERATIONS & MAINTENANCE

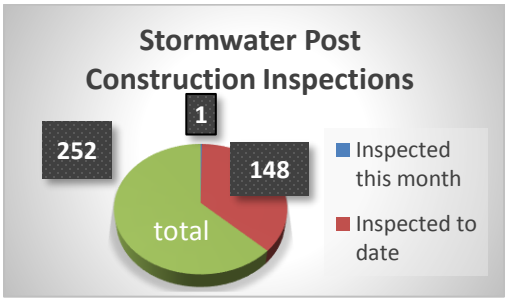
ASPHALT PURCHASES

Date	Approval	Vendor	Type	Rate	Qty	Total	FY Total
7/23	DH	Hawkins	BM	$48.50	23.97	$1,162.55	$1,162.55
7/23	DH	Hawkins	411E	$60.50	8.00	$484.00	$1,646.55
7/23	DH	Hawkins	411E	$60.50	54.06	$3,270.63	$4,917.18
7/26	DH	Hawkins	BM	$48.50	71.84	3,484.24	$8,401.42
7/29	DH	Hawkins	BM	$48.50	90.02	4,365.97	$12,767.39
7/30	DH	Hawkins	BM	$48.50	79.41	3,851.39	$16,618.77
7/30	DH	Hawkins	BM	$48.50	72.00	3,492.00	$20,110.77
7/31	DH	Hawkins	BM	$48.50	85.00	$4,122.50	$24,233.27
8/27	DH	Hawkins	BM	$48.50	80.67	$3,912.50	$28,145.77
8/27	DH	Hawkins	BM	$48.50	7.98	$387.03	$28,532.80
8/28	DH	Hawkins	411E	$60.50	10.04	$607.42	$29,140.22
8/29	DH	Hawkins	411E	$60.50	15.97	$966.19	$30,106.40

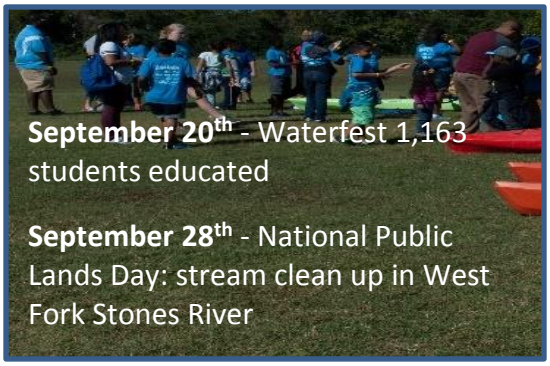
Stormwater Dashboard – September 2019



Inspection Program

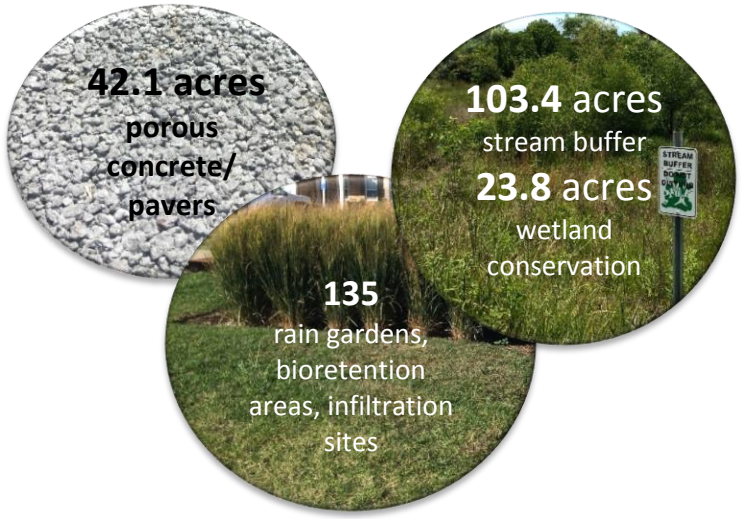


Education and Outreach



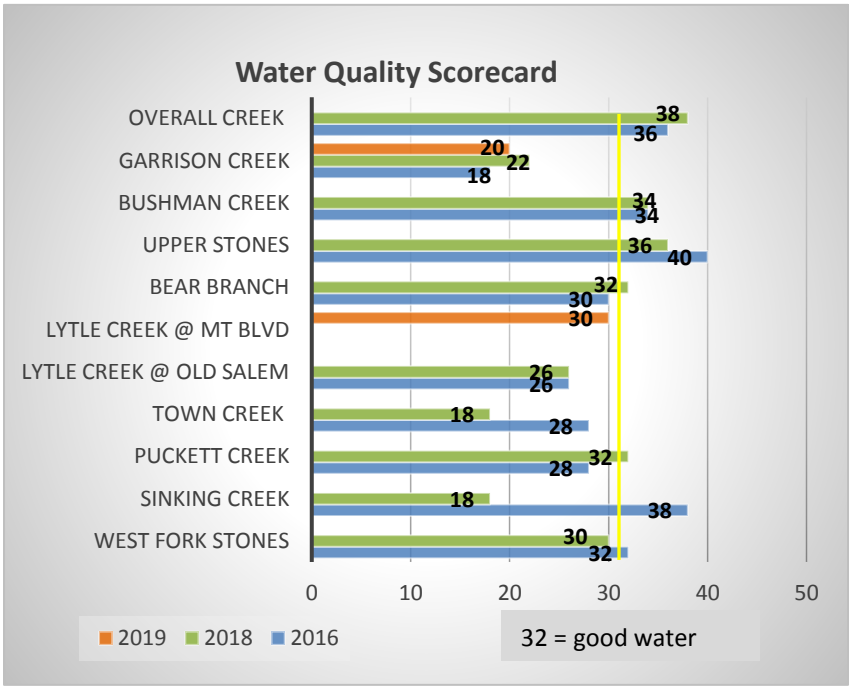
October: Visual Stream Assessment and dry weather outfall screening in Sinking Creek.

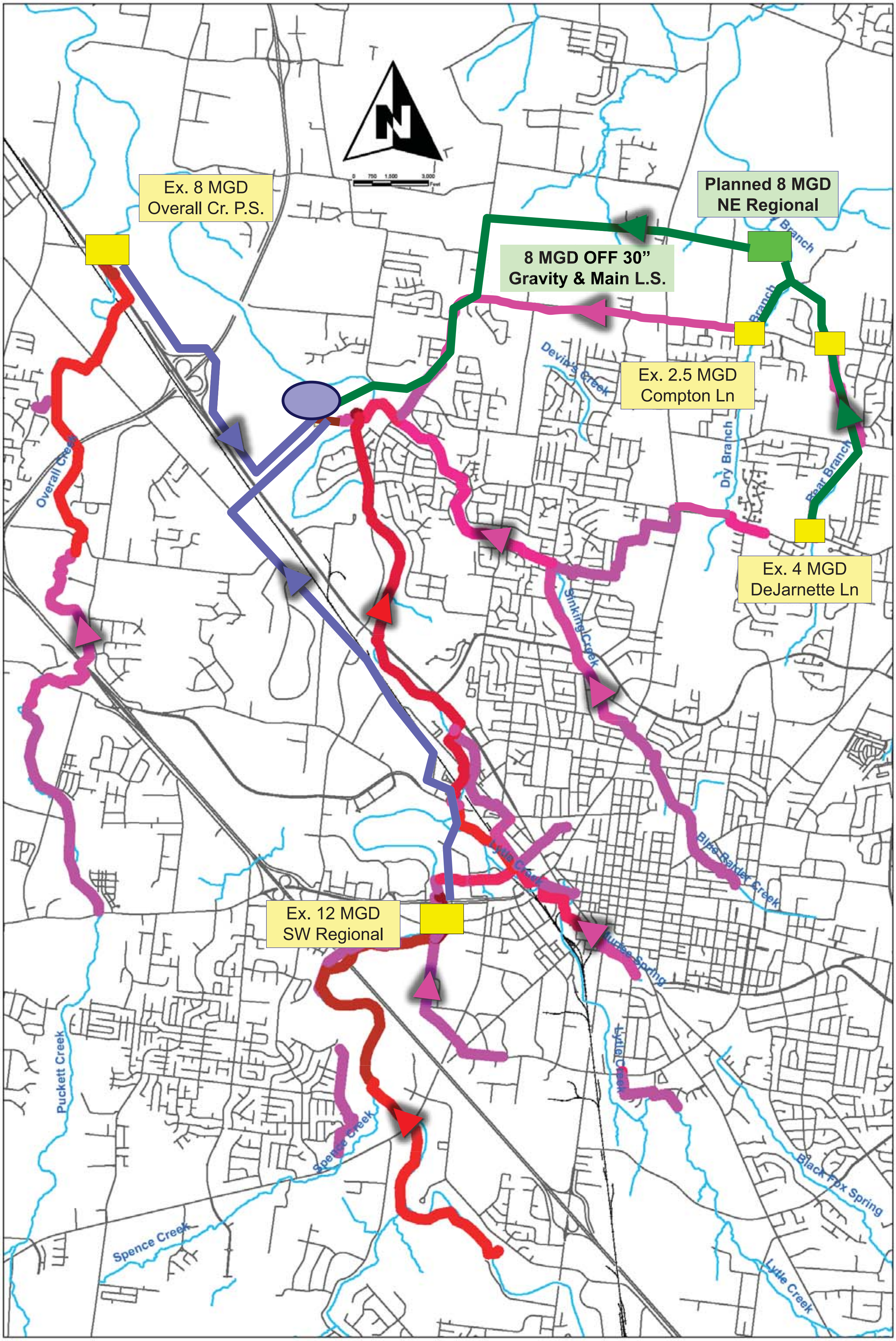
LID/ Green Infrastructure



Stormwater Infrastructure

	Sept	YTD	Total
Junction Boxes	99	518	16,264
Headwalls	21	191	6,803
Ponds	3	34	504
Gravity Mains	14,282 ft	71,446 ft	696.1 miles
Weirs	3	26	296
WQ Units	0	6	111
Underground Storage	0	0	30




Ex. 8 MGD
Overall Cr. P.S.
Planned 8 MGD
NE Regional
8 MGD OFF 30"
Gravity & Main L.S.
Ex. 2.5 MGD
Compton Ln
Ex. 4 MGD
DeJarnette Ln
Ex. 12 MGD
SW Regional
Overall Creek
Devin's Creek
Dry Branch
Bear Branch
Sinking Creek
Bluebarder Creek
Lytle Creek
Murfree Spring
Puckett Creek
Spence Creek
Black Fox Spring

MURFREESBORO WATER RESOURCES DEPARTMENT
OPERATING REVENUES AND EXPENDITURES
THREE MONTHS ENDED SEPTEMBER 30, 2019

	YTD ACTUAL	ANNUAL BUDGET	% TO BUDGET
Operating Revenues			
Water Revenue	$ 4,409,044	$ 16,654,000	26%
Repurified Revenue	$ 10,974	$ 26,000	42%
Wastewater Revenue	$ 7,219,259	$ 29,804,000	24%
Other Income	$ 276,341	$ 596,000	46%
Total Operating Revenues	$ 11,915,618	$ 47,080,000	25%
Water Operating Expenses	$ 2,515,867	$ 11,526,114	22%
Wastewater Operating Expenses	$ 2,711,065	$ 12,829,162	21%
Total Operating Expenses	$ 5,226,931	$ 24,355,276	21%
Net Earnings from Operations	$ 6,688,687	$ 22,724,724	29%

WATER REVENUES	YTD ACTUAL	ANNUAL BUDGET	% TO BUDGET
Metered Water	$ 4,023,455	$ 15,200,000	26%
Water Adjustments	$ (2,853)	$ (26,000)	11%
Private Fire Protection	$ 28,487	$ 112,000	25%
Service Initiation Fees	$ 73,310	$ 230,000	32%
Late Fees	$ 177,274	$ 700,000	25%
Non-Payment Fees	$ 43,790	$ 180,000	24%
Returned Payment Fees	$ 2,040	$ 8,000	26%
Cross Connection	$ 62,670	$ 225,000	28%
Enernoc	$ 870	$ 25,000	3%
Miscellaneous	$ -	$ -	
TOTAL WATER REVENUES	$ 4,409,044	$ 16,654,000	26%
REPURIFIED REVENUES			
Repurified Revenue	$ 10,974	$ 26,000	42%
TOTAL REPURIFIED REVENUES	$ 10,974	$ 26,000	42%
WASTEWATER REVENUES			
Enernoc	$ 204	$ 5,000	4%
Sewer Charges	$ 7,141,429	$ 29,500,000	24%
Sewer Adjustments	$ (25,140)	$ (140,000)	18%
Surveillance	$ 9,576	$ 38,000	25%
Sampler	$ 4,500	$ 18,000	25%
BOD	$ 53,084	$ 275,000	19%
Amonia	$ 12,967	$ 60,000	22%
Septage Charges	$ 20,775	$ 45,000	46%
STEP Revenue	$ 1,864	$ 3,000	62%
TOTAL SEWER REVENUES	$ 7,219,259	$ 29,804,000	24%
OTHER INCOME			
Interest Earnings	$ 178,786	$ 400,000	45%
Inspections	$ 66,065	$ 166,000	40%
Miscellaneous	$ 31,490	$ 30,000	105%
TOTAL OTHER INCOME	$ 276,341	$ 596,000	46%

MURFREESBORO WATER RESOURCES DEPARTMENT
OPERATING REVENUES AND EXPENDITURES
THREE MONTHS ENDED SEPTEMBER 30, 2019

Water Operating Expenses	YTD ACTUAL	ANNUAL BUDGET	% TO BUDGET
Water Source	$ 32,128	$ 208,000	15%
Water Treatment	$ 983,202	$ 4,259,169	23%
Water Storage	$ 4,739	$ 67,300	7%
Water Distribution	$ 372,979	$ 1,776,098	21%
Cross Connection	$ 77,640	$ 351,959	22%
Water Plant Administration	$ 180,002	$ 977,419	18%
AMI Field Services	$ 210,325	$ 919,329	23%
O&M Admin Allocation (40%)	$ 82,903	$ 229,594	36%
Customer Service Allocation (50%)	$ 148,080	$ 690,837	21%
Engineering Allocation (40%)	$ 81,422	$ 463,758	18%
Field Inspection Allocation (25%)	$ 29,678	$ 112,868	26%
Admin Allocation (40%)	$ 312,769	$ 1,469,782	21%
Total Water Operating Expenses	$ 2,515,867	$ 11,526,114	22%
Wastewater Operating Expenses			
Wastewater Collections	$ 453,467	$ 2,213,855	20%
Wastewater Rehab	$ 25,989	$ 158,500	16%
Wastewater Pump Stations	$ 185,576	$ 779,924	24%
Wastewater Industrial Surveillance	$ 73,059	$ 320,878	23%
Wastewater House Services	$ 4,171	$ -	
Wastewater Treatment	$ 649,640	$ 2,953,269	22%
Wastewater Disposal	$ 123,455	$ 727,407	17%
WRRF Administration	$ 181,885	$ 916,888	20%
STEP System	$ 435	$ 24,000	2%
Repurified Treatment	$ -	$ 121,000	0%
Repurified Distribution	$ 1,228	$ 29,500	4%
Repurified Disposal	$ 59,403	$ 309,797	19%
O&M Admin Allocation (60%)	$ 124,355	$ 344,391	36%
Customer Service Allocation (50%)	$ 148,080	$ 690,837	21%
Engineering Allocation (60%)	$ 122,134	$ 695,638	18%
Field Inspection Allocation (75%)	$ 89,033	$ 338,605	26%
Admin Allocation (60%)	$ 469,154	$ 2,204,674	21%
Total Sewer Operating Expenses	$ 2,711,065	$ 12,829,162	21%

MURFREESBORO WATER RESOURCES DEPARTMENT
OPERATING REVENUES AND EXPENDITURES
THREE MONTHS ENDED SEPTEMBER 30, 2019

SUMMARY OF NET TAP FEES	YTD ACTUAL	ANNUAL BUDGET	% TO BUDGET
Water Taps/Reserves	$ 127,476	$ 500,000	25%
Sewer Taps/Reserves	$ 1,658,833	$ 5,500,000	30%
Special Assessment Districts	$ 622,981	$ 2,000,000	31%
	$ 2,409,289	$ 8,000,000	30%

DEBT SERVICE	YTD ACTUAL	ANNUAL BUDGET	% TO BUDGET
Principal	$ 660,147	$ 11,547,588	6%
Interest	$ 274,125	$ 1,940,732	14%
	$ 934,272	$ 13,488,320	7%

Debt Coverage Ratio	YTD ACTUAL	ANNUAL BUDGET	% TO BUDGET
Operating Net Earnings	$ 6,688,687	$ 22,724,724	29%
Debt Service	$ 934,272	$ 13,488,320	7%
	7.16	1.68	